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**R 400.20608**

Source: 1983 AACS.

**R 400.20609**

Source: 1983 AACS.

**R 400.20610**

Source: 1983 AACS.

**R 400.20611**

Source: 1983 AACS.

**R 400.20612**

Source: 1983 AACS.

**R 400.20613**

Source: 1983 AACS.

**R 400.20614**

Source: 1983 AACS.

**R 400.20615**

Source: 1983 AACS.

**DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES  
BUREAU OF WORKERS' DISABILITY COMPENSATION**

**GENERAL RULES**

**PART 1. RECORDS**

**R 408.31**

Source: 1998-2000 AACS.

**R 408.31a**

Source: 1998-2000 AACS.

**R 408.32**

Source: 1998-2000 AACS.

**R 408.32a**

Source: 1998-2000 AACS.

**R 408.33**

Source: 1998-2000 AACS.

**PART 2. HEARINGS**

**R 408.34**

Source: 1998-2000 AACS.

**R 408.35**

Source: 1998-2000 AACS.

**R 408.36**

Source: 1984 AACS.

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**R 408.37**  
Source: 1998-2000 AACS.

**R 408.38**  
Source: 1998-2000 AACS.

**R 408.39**  
Source: 1998-2000 AACS.

**R 408.40**  
Source: 1998-2000 AACS.

**R 408.40a**  
Source: 1998-2000 AACS.

**R 408.40b**  
Source: 1998-2000 AACS.

**R 408.40c**  
Source: 1998-2000 AACS.

**R 408.40d**  
Source: 1998-2000 AACS.

**R 408.40e**  
Source: 1998-2000 AACS.

**R 408.40f**  
Source: 1998-2000 AACS.

**R 408.40g**  
Source: 1998-2000 AACS.

**R 408.40h**  
Source: 1998-2000 AACS.

**PART 3. INSURANCE**

**R 408.41b**  
Source: 1998-2000 AACS.

**R 408.41c**  
Source: 1998-2000 AACS.

**R 408.42**  
Source: 1998-2000 AACS.

**R 408.42a**  
Source: 1998-2000 AACS.

**R 408.42b**  
Source: 1998-2000 AACS.

**R 408.43**  
Source: 1998-2000 AACS.

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**R 408.43a**

**Source:** 1998-2000 AACS.

**R 408.43b**

**Source:** 1998-2000 AACS.

**R 408.43c**

**Source:** 1998-2000 AACS.

**R 408.43i Group self-insurer's fund; board of trustees' power and duties; investment restrictions.**

Rule 13i. (1) To ensure the financial stability of each group self-insurers' fund, a board of trustees of each fund shall be responsible for all operations of the fund. A board of trustees shall be a group of members elected by the membership of the fund for stated terms of office. The majority of the trustees shall be owners or employees of members of the self-insurers' fund, but a trustee shall not be an owner, officer, or employee of a service company. The board of trustees of each fund shall take all necessary precautions to safeguard the assets of the fund, including all of the following:

(a) Designate a trustee as administrator or, in the alternative, hire an employee or designate an individual to act as the group fund administrator. The trustees may delegate to the administrator the duties they determine proper. The duties may include, but are not limited to, advising the board with regard to any of the following:

(i) Contracting with a service company.

(ii) Determining the premium charged.

(iii) Investing surplus monies, subject to the restrictions set forth in this rule.

(iv) Accepting applications for membership.

However, the board of trustees remains the responsible party for the operation of the fund. The duties delegated to the administrator and all compensation to be paid to the administrator shall be reduced to writing, and a copy shall be provided to the bureau with each annual group renewal application. The group fund administrator shall not be an owner, officer, or employee of a service company. The trustees shall purchase a fidelity policy covering the fund trustees, administrator, employees of the fund, and the service company in an amount sufficient to protect the assets of the fund. A copy of the fidelity policy will be provided to the bureau with each annual renewal.

(b) Limit disbursements to payment and expenses of handling claims and administrative expenses necessary for operating the fund. The board of trustees shall also establish necessary accounts and accounting procedures for control and accurate financial reporting. Established accounting procedures shall provide accurate financial information for each open year individually with respect to revenue and expense until the year is closed out. The board of trustees shall maintain, and be responsible for, all records and documents relating to the formation and ongoing operation of the group self-insurance fund. If the board of trustees does not maintain the records in a responsible manner and in accordance with these rules, then the self-insured approval of the fund may be terminated by the director.

(c) Audit the accounts and records of the fund annually or at any time required by the bureau. Audits shall be made by certified public accountants or by authorized representatives of the bureau. The bureau reserves the right to prescribe the type of audits to be made and the uniform accounting system to be used by the self-insurers' fund to enable the bureau to determine the solvency of the group self-insurers' fund. Copies of financial audits prepared by certified public accountants shall be filed with the bureau in Lansing within 180 days after the close of the fund year. Claim reserve audits used in support of surplus distribution requests shall be performed by auditors who meet the requirements of the bureau relating to independence, report content, and timing.

(d) Not extend credit to individual members for payment of premium.

(e) Apply a penalty rate in excess of the normal premium to any risk that has unfavorable loss experience, if the member and the bureau are notified in writing before the effective date of the change in rates.

(f) Not utilize any of the monies collected as premiums for any purpose unrelated to workers' compensation. Further, the board of trustees shall not borrow any monies from the fund or in the name of the fund without advising the bureau of the nature and purpose of the loan and obtaining bureau approval. The board of trustees may, at its discretion, invest any surplus monies not needed for immediate cash needs, but the investments shall be limited to United States government bonds, United States treasury notes, United States government agency issues, United States government-sponsored enterprises, investment share accounts in any savings and loan association and credit unions that have their deposits insured by a federal agency, and certificates of deposit issued by a duly chartered commercial bank. Deposits in savings and loan associations, credit unions, and commercial banks shall be limited to institutions in this state and shall not exceed the federally insured amount in any 1 account, except that the federally insured amount in any 1 account in a commercial bank may be exceeded if the account amount involved does not exceed either of the following factors:

(i) Five percent of the combination of surplus and undivided profits and reserves as currently reported for each bank in the

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state in the banking division annual report of the financial institutions bureau of the department of consumer and industry service.

(ii) Five hundred thousand dollars per institution.

A group self-insurance fund shall not invest in mutual funds, except that investments in money market mutual funds of short-term duration which invest only in government agency issues, government-sponsored enterprises, and government bills, bonds, and notes will be allowed for short-term cash investment needs. As used in this paragraph, "short-term duration" means 180 days or less.

(g) The board of trustees of a group self-insurance fund, subject to the limitations set forth in subdivisions (h), (i), and (j) of this subrule, may, in its discretion, and upon contracting with a bank trust department or with a professional investment advisor registered with the securities and exchange commission under the investment advisors act of 1940, 15 U.S.C. '80B-3, invest monies not needed for immediate cash needs in corporate bonds and municipal bonds and common and preferred stock.

(h) Limit the combined holdings of corporate and municipal bonds to not more than 45% of the market value of the fund's total assets. Corporate and municipal bonds must be (A) rated or better by at least two nationally recognized rating services. Not more than 5% of the corporate and municipal bond portfolio may be invested in any 1 corporation or municipality.

(i) Of the 45% of the market value of the investment portfolio available for investment in municipal or corporate bonds, 25% may be invested in common or preferred stocks. Common or preferred stocks shall be limited to publicly owned companies that trade on a United States regulated exchange. Mutual funds or bank pooled funds that invest in common or preferred stocks are permitted and shall be calculated as part of the percentage of market value available for investment in common and preferred stocks.

(j) Ensure that the professional investment advisor completes a compliance review of the investment portfolio on a quarterly basis. A copy of the investment review shall be provided to the fund and the bureau within 30 days of the close of each quarter. The annual financial statements shall be audited by a certified public accountant and shall include a certification as to whether the fund has been in compliance with the requirements for investments. Failure to report on investments as required by this rule may result in withdrawal of the authority to invest in corporate and municipal bonds and/or common and preferred stocks.

(k) Any group fund found to have investments in vehicles other than as provided by this rule shall be given 30 days or a time period approved by the director to divest themselves of the investments. Failure to meet the divestiture requirement may subject the fund to further sanction by the director.

History: 1979 ACS 3, Eff. Sept. 3, 1980; 1984 MR 7, Eff. July 19, 1984; 1996 MR 3, Eff. Mar. 29, 1996; 1997 MR 12, Eff. Jan. 7, 1998; 2003 MR 9, Eff. May 15, 2003.

**R 408.43k**

**Source:** 1998-2000 AACS.

**R 408.43m**

**Source:** 1998-2000 AACS.

**R 408.43n**

**Source:** 1998-2000 AACS.

**R 408.43q**

**Source:** 1998-2000 AACS.

**R 408.43s Group funds; insufficient funding; creation of trust; appointment of trustees.**

Rule 13s (1) If the plan to achieve full funding for payment of all claims and expenses of the self-insurers group pursuant to rule 408.43j is not approved by the bureau, then the bureau may order the board of trustees of the self-insurers group to immediately assess the employer members of the group for the full amount of the deficiency and/or order that any surplus funds distributed to group members during the previous 12 calendar months from the date of discovery of the funding deficiency by the group fund be immediately returned.

(2) If the bureau determines that the self-insurers group ceases to provide ongoing and active coverage to its members and/or the requirements of this rule are not sufficient to secure all future liability established by the workers disability compensation act of 1969, then the bureau may require additional assessment of the employer members of the group and request the director to create and establish the terms of a trust, at the expense of the self-insurers group, for the deposit and administration of any assessment received and/or all assets of the self-insurers group. The trustees of the funds appointed under section 511 of the workers' disability compensation act shall be appointed trustees of the self-insurers group trust fund established under this rule.

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History: 2003 MR 9, Eff. May 15, 2003.

**PART 4. MISCELLANEOUS**

**R 408.44**  
Source: 1998-2000 AACS.

**R 408.45**  
Source: 1998-2000 AACS.

**R 408.46**  
Source: 1998-2000 AACS.

**R 408.48**  
Source: 1985 AACS.

**PART 5. REVIEW AND APPEAL**

**R 408.49**  
Source: 1998-2000 AACS.

**R 408.50**  
Source: 1998-2000 AACS.

**R 408.51**  
Source: 1998-2000 AACS.

**R 408.52**  
Source: 1998-2000 AACS.

**PART 6. DEFINITIONS**

**R 408.59**  
Source: 1984 AACS.

**SKI AREA SAFETY BOARD  
GENERAL RULES**

**R 408.61**  
Source: 1998-2000 AACS.

**R 408.65**  
Source: 1998-2000 AACS.

**R 408.66**  
Source: 1997 AACS.

**R 408.68**  
Source: 1997 AACS.

**R 408.69**  
Source: 1997 AACS.

**R 408.70**  
Source: 1998-2000 AACS.

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**R 408.71**  
Source: 1997 AACS.

**R 408.75**  
Source: 1998-2000 AACS.

**R 408.76**  
Source: 1998-2000 AACS.

**R 408.77**  
Source: 1998-2000 AACS.

**R 408.78**  
Source: 1998-2000 AACS.

**R 408.79**  
Source: 1989 AACS.

**R 408.80**  
Source: 1998-2000 AACS.

**R 408.81**  
Source: 1998-2000 AACS.

**R 408.82**  
Source: 1998-2000 AACS.

**R 408.83**  
Source: 1989 AACS.

**R 408.90**  
Source: 1989 AACS.

**R 408.91**  
Source: 1997 AACS.

**R 408.92**  
Source: 1989 AACS.

**R 408.97**  
Source: 1997 AACS.

**DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES**

**BUREAU OF SAFETY AND REGULATION**

**OCCUPATIONAL HEALTH STANDARDS COMMISSION**

**MINE SAFETY**

**Rule 408.121**  
Source: 1998-2000 AACS.

**Rule 408.122**  
Source: 1998-2000 AACS.

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**OCCUPATIONAL HEALTH STANDARDS COMMISSION**

**ABANDONED AND IDLE MINES**

- R 408.171**  
Source: 1998-2000 AACS.
- R 408.172**  
Source: 1998-2000 AACS.
- R 408.174**  
Source: 1998-2000 AACS.
- R 480.175**  
Source: 1998-2000 AACS.
- R 408.176**  
Source: 1998-2000 AACS.
- R 408.177**  
Source: 1998-2000 AACS.
- R 408.178**  
Source: 1998-2000 AACS.
- R 408.179**  
Source: 1998-2000 AACS.
- R 408.180**  
Source: 1998-2000 AACS.

**BUREAU OF SAFETY AND REGULATION  
EMPLOYMENT OF MINORS**

- R 408.201**  
Source: 1997 AACS.
- R 408.202**  
Source: 1997 AACS.
- R 408.203**  
Source: 1997 AACS.
- R 408.204**  
Source: 1997 AACS.
- R 408.205**  
Source: 1997 AACS.
- R 408.206**  
Source: 1997 AACS.

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**BUREAU OF SAFETY AND REGULATION**

**OCCUPATIONAL HEALTH STANDARDS COMMISSION**

**OXYGEN SUPPLY EQUIPMENT**

**R 408.491**

**Source:** 1998-2000 AACS.

**R 408.492**

**Source:** 1998-2000 AACS.

**DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES**

**OCCUPATIONAL HEALTH STANDARDS COMMISSION**

**HEARINGS**

**R 408.501**

**Source:** 1998-2000 AACS.

**R 408.502**

**Source:** 1998-2000 AACS.

**R 408.503**

**Source:** 1998-2000 AACS.

**R 408.504**

**Source:** 1998-2000 AACS.

**R 408.505**

**Source:** 1998-2000 AACS.

**R 408.506**

**Source:** 1998-2000 AACS.

**BUREAU OF EMPLOYMENT STANDARDS**

**GENERAL RULES**

**PART 1. GENERAL PROVISIONS**

**R 408.701**

**Source:** 1998-2000 AACS.

**R 408.702**

**Source:** 1998-2000 AACS.

**R 408.703**

**Source:** 1998-2000 AACS.

**R 408.704**

**Source:** 1998-2000 AACS.

**R 408.705**

**Source:** 1998-2000 AACS.



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**R 408.706**  
Source: 1998-2000 AACS.

**PART 2. OVERTIME COMPENSATION**

**R 408.721**  
Source: 1998-2000 AACS.

**R 408.722**  
Source: 1998-2000 AACS.

**R 408.723**  
Source: 1998-2000 AACS.

**R 408.724**  
Source: 1998-2000 AACS.

**R 408.725**  
Source: 1998-2000 AACS.

**R 408.726**  
Source: 1998-2000 AACS.

**R 408.727**  
Source: 1998-2000 AACS.

**R 408.728**  
Source: 1998-2000 AACS.

**R 408.729**  
Source: 1998-2000 AACS.

**R 408.730**  
Source: 1998-2000 AACS.

**R 408.731**  
Source: 1997 AACS.

**R 408.732**  
Source: 1997 AACS.

**R 408.733**  
Source: 1998-2000 AACS.

**R 408.734**  
Source: 1998-2000 AACS.

**R 408.735**  
Source: 1998-2000 AACS.

**DIRECTOR OF LABOR AND WAGE DEVIATION BOARD  
CERTIFICATES FOR SHELTERED WORKSHOPS AND  
EMPLOYMENT OF HANDICAPPED WORKERS**

**R 408.751**  
Source: 1997 AACS.

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**R 408.752**  
Source: 1997 AACS.

**R 408.753**  
Source: 1997 AACS.

**R 408.754**  
Source: 1997 AACS.

**R 408.755**  
Source: 1997 AACS.

**R 408.756**  
Source: 1997 AACS.

**R 408.757**  
Source: 1997 AACS.

**R 408.758**  
Source: 1997 AACS.

**R 408.759**  
Source: 1997 AACS.

**R 408.760**  
Source: 1997 AACS.

**R 408.761**  
Source: 1997 AACS.

**R 408.762**  
Source: 1997 AACS.

**R 408.763**  
Source: 1997 AACS.

**R 408.764**  
Source: 1997 AACS.

**BUREAU OF EMPLOYMENT STANDARDS  
WAGE DEVIATION**

**R 408.771**  
Source: 1983 AACS.

**R 408.772**  
Source: 1983 AACS.

**R 408.773**  
Source: 1983 AACS.

**R 408.774**  
Source: 1983 AACS.

**R 408.775**  
Source: 1983 AACS.

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**R 408.776**  
Source: 1983 AACS.

**R 408.777**  
Source: 1983 AACS.

**R 408.778**  
Source: 1983 AACS.

**R 408.779**  
Source: 1983 AACS.

**R 408.780**  
Source: 1983 AACS.

**R 408.781**  
Source: 1983 AACS.

**R 408.782**  
Source: 1983 AACS.

**R 408.783**  
Source: 1983 AACS.

**R 408.784**  
Source: 1983 AACS.

**R 408.785**  
Source: 1983 AACS.

**R 408.786**  
Source: 1983 AACS.

**R 408.787**  
Source: 1983 AACS.

**DIRECTOR'S OFFICE  
CARNIVAL AND AMUSEMENT RIDES**

**PART 1. GENERAL PROVISIONS**

**R 408.801 Scope.**

Rule 1. These rules establish administrative and operational procedures for implementation of 1966 PA 225, MCL 408.651 et seq. These rules also establish minimum safety standards for the design, construction, installation, repair, maintenance, use, operation, and inspection of carnival-amusement rides.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1954 ACS 59, Eff. Aug. 14, 1969; 1954 ACS 86, Eff. Jan. 16, 1976; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.802 Safety requirements for carnival-amusement rides and devices.**

Rule 2. (1) Electrical wiring, apparatus, and equipment shall be manufactured, installed, and maintained as prescribed in the national electrical code, 2002 edition, published by the national fire protection association, NFPA No. 70-02. The provisions of the national electrical code are adopted by reference as electrical standards for the carnival and amusement rides and devices in this state.

(2) These adopted provisions may be purchased at a cost of \$49.75 at the time of adoption of these rules from the National Fire Protection Association, Customer Service Department, 11 Tracy Drive, Avon MA 02322. Telephone: 800-344-3555, or 617-770-3000, website address: [www.nfpa.org](http://www.nfpa.org) or ordered from the Michigan Department of Consumer and Industry

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Services, Bureau of Commercial Services, Carnival-Amusement Safety Board, 2501 Woodlake Circle, Okemos, Michigan, Phone: 517/241-9233, Fax: 517/241-241-9280. Mailing address; P.O. Box 30018, Lansing, Michigan 48909-7518, at a cost of \$70.00 at the time of adoption of these rules. A copy of this code and the general rules of the board are on file in the Lansing office of the Department of Consumer and Industry Services, Bureau of Commercial Services, 2501 Woodlake Circle, Okemos, Michigan and are available for public inspection at this location.

(3) The department adopts by reference the ASTM Standards on Amusement Rides and Devices, sponsored by ASTM F-24 Committee, 6TH Edition, 2000. The adopted standards may be purchased from The American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken PA 19428-2959, Customer Service Telephone: 610-832-9500 or from the Department of Consumer and Industry Services, Bureau of Commercial Services, 2501 Woodlake Circle, Okemos, Michigan. Phone 517/241-9233, address, P.O. Box 30018, Lansing, Michigan 48909-7518, at a cost of \$49.00 at the time of adoption of these rules. A copy of the ASTM Standards is available for public inspection at the Department of Consumer and Industry Services, Bureau of Commercial Services, 2501 Woodlake Circle, Okemos Michigan.

History: 1954 ACS 86, Eff. Jan. 16, 1976; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003. Editor's Note: An obvious error in R 408.802 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in Michigan Register, 2003 MR 1. The memorandum requesting the correction was published in Michigan Register, 2003 MR 2.

**R 408.803 Definitions; A to C.**

Rule 3. As used in these rules:

- (a) "Act" means 1966 PA 225, MCL 408.651 et seq.
- (b) "Aerial passenger tramway" means any of the following devices used to transport passengers:
  - (i) "Single and double reversible aerial tramways" which means devices in which passengers are carried in 1 or more enclosed cars that reciprocate between terminals.
  - (ii) "Chair lift, gondola lift, and monorail" means a device in which passengers are carried on chairs, cars, or in gondola cabs attached to and suspended from a moving wire rope or attached to a moving wire rope or chain and supported on a standing wire rope, rail, or other structure.
- (c) "Amusement park" means a tract or area used principally as a permanent location for carnival-amusement rides.
- (d) "Annual inspection" means the official inspection of a ride by the department as prescribed by the act and which conforms with these rules.
- (e) "Annual inspection fee" means a fee established as prescribed by section 8 of the act for the annual inspection.
- (f) "Average adult passenger" means, for the purposes of design, a person weighing 170 pounds.
- (g) "Average child passenger" means, for the purposes of design, a child weighing 75 pounds.
- (h) "Board" means the carnival-amusement safety board created by the act.
- (i) "Carnival" means an enterprise principally devoted to offering amusement or entertainment to the public in, upon, or by means of, amusement rides or temporary structures in any number or combination, whether or not associated with other structures or forms of public attraction.
- (j) "Carnival-amusement ride" or "ride" means a device which carries or conveys passengers along, around, or over a fixed or restricted route or course for the purpose of giving its passengers amusement, pleasure, thrills, or excitement. The terms include rides such as, but not limited to, go-karts, rides on inclined surfaces, and slides. Unpowered playground equipment is not included.
- (k) "Containing device" means a strap, belt, bar, gate, or other safety device designed to prevent accidental or inadvertent dislodgement of a passenger from a ride, but which does not actually provide physical support.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1954 ACS 59, Eff. Aug. 14, 1969; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.805**

**Source:** 1997 AACCS.

**R 408.806 Definitions; D to N.**

Rule 6. As used in these rules:

- (a) "Department" means the department of consumer and industry services.
- (b) "Device" means a piece of carnival or amusement equipment or mechanism designed to serve a special purpose or perform a special function.
- (c) "Director" means the director of the department of consumer and industry services or authorized representative.
- (d) "Factor of safety" or "safety factor" means the ratio of the ultimate strength of a member or piece of material to the actual working stress or to the maximum permissible or safe load stress when in use.

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- (e) "Kiddie ride" means a ride designed primarily for use by children, but which may accommodate adults.
  - (f) "Load design" or "design load" means the load established by the design engineer for the department for normal operation plus required or acceptable factors of safety. A ride shall be designed to withstand both static and dynamic loads, including dead, live, and wind loads, plus impact.
  - (g) "Major alteration" means a change in the type or capacity of a carnival-amusement ride or a change in the structure or mechanism that materially affects its function or operation.
  - (h) "Major breakdown" means a stoppage of operation from whatever cause resulting in damage, failure, or breakage of a structural or stress-bearing part of a ride.
  - (i) "Major ride" means a ride designed to carry a specific number of passengers, adults, or children, either by power or gravity, in cars or other suitable fixtures for conveying persons.
  - (j) "Miscellaneous ride" means any other ride not specifically provided for, described, or defined in these rules.
  - (k) "New ride" means a ride for which a permit has not been previously issued by the department for operation in the state, a newly purchased ride, or any other ride upon change of title or ownership.
  - (l) "No-show fee" means a fee established as prescribed by section 8 of the act for not having a carnival available for inspection as indicated by the notice of routing schedule required by R 408.871.
- History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.807**

**Source:** 1997 AACS.

**R 408.809**

**Source:** 1997 AACS.

**R 408.811**

**Source:** 1997 AACS.

**R 408.813 Definitions; O to S.**

Rule 13. As used in these rules:

- (a) "Owner/operator" means a person who owns or controls, or has the duty to control, the operation of 1 or more rides.
  - (b) "Permit fee" means an annual fee, established as prescribed by section 8 of the act, for a permit to operate.
  - (c) "Permit to operate" means a permit issued annually by the department to an owner/operator for authorization to operate a ride in this state.
  - (d) "Person" means an individual, corporation, partnership, firm, limited liability company, organization, or association, including the state and any political subdivision.
  - (e) "Rated capacity" means a capacity established by the design engineer for the normal loading and operation of a ride or, in the absence thereof, as established by the department after inspection and determination.
  - (f) "Reinspection" means an inspection, other than the annual inspection made during the current season, of a ride as a result of a major breakdown, major alteration, or for any cause which may be deemed necessary by the department.
  - (g) "Reinspection fee" means a fee, established as prescribed by section 8 of the act, for a reinspection.
  - (h) "Restraining device" means a safety belt, harness, chair, bar, or other device which affords actual physical support, retention, or restraint to the passenger of a ride.
  - (I) "River ride" means a body of water which has flotation devices and which is designed to convey riders around a route or course using an artificially created current.
  - (j) "Rope," "wire rope," and "cable" are interchangeable, but are not interchangeable with the term "fiber rope."
  - (k) "Safety retainer" means a secondary safety cable, bar, attachment, or other device designed to prevent parts of a ride from becoming disengaged from the mechanism or from tipping or tilting in a manner hazardous to persons riding on, or in the vicinity of, a ride.
  - (l) "Sign" means the notices required by section 19 (1) of the act, indicating the applicable rider safety responsibilities defined in section 18 of the act, and the location of stations to report injuries under section 20 of the act.
  - (m) "Special inspector commission" means a commission issued annually by the department to an owner/operator or to an employee designated by, and in the employment of, an owner/operator.
- History: 1954 ACS 52, Eff. Nov. 15, 1967; 1954 ACS 59, Eff. Aug. 14, 1969; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.814 Definitions; W.**

Rule 14. "Water slide" means a inclined, nonmechanical amusement ride which has all of the following characteristics:

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- (a) Consists of 1 or more courses of varying slopes and directions.
- (b) Relies on gravity and not a mechanical system to propel its passengers.
- (c) Uses water to lubricate the course and to regulate passenger velocity.  
“Water slide” does not include slides which are not separate amusement rides but which are customarily recreational equipment as evidenced by a vertical drop of 10 feet or less and a total linear slide length of 50 feet or less.
- (d) Includes a landing area or runout designed to bring riders to a complete stop and allow them to exit the ride in a safe manner.

History: 1996 MR 7, Eff. Aug. 1, 1996; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.815**

**Source:** 1997 AACCS.

**R 408.816**

**Source:** 1983 AACCS.

**R 408.817**

**Source:** 1996 AACCS.

**R 408.819**

**Source:** 1983 AACCS.

**PART 2. DESIGN, CONSTRUCTION, AND OPERATION**

**R 408.821 Certified analysis.**

Rule 21. (1) An owner/operator shall furnish a certified stress analysis and other pertinent data deemed necessary by the department for new rides and for all existing rides for which this information may be requested. The stress analysis and other data pertinent to the design, structure, factors of safety, or performance characteristics shall be acceptable to the department. The data may be requested for, but not limited to, the following materials:

- (a) Parts or components of rides.
- (b) Structural materials, including all of the following:
  - (i) Bars.
  - (ii) Cables.
  - (iii) Chains.
  - (iv) Ropes.
  - (v) Rods.
  - (vi) Tubing.
  - (vii) Pipes.
  - (viii) Girders.
  - (ix) Braces.
  - (x) Fittings.
  - (xi) Fasteners.
  - (xii) Trusses.
  - (xiii) Pressure vessels.
  - (xiv) Pressure piping.
  - (xv) Gears.
  - (xvi) Clutches.
  - (xvii) Speed reducers.
  - (xviii) Welds.
  - (xix) Bearings.
  - (xx) Couplings.
  - (xxi) Shaftings.
  - (xxii) Carriers, such as tubs, cars, chairs, gondolas, or seating and carrying apparatus of any description.
  - (xxiii) Axles.
  - (xxiv) Hangers.
  - (xxv) Pivots.
  - (xxvi) Safety bars, harnesses, chains, gates, or other restraining, containing, or retaining devices.

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(xxvii) Required clearances in entry or exit area of rides.

(2) Data shall be furnished at the request of the department concerning forces generated by acceleration or deceleration, centrifugal action, or kinetic or other forces which are constant, reversible, or eccentric.

(3) A stress analysis and prints shall be certified by a professional engineer who is registered in any state of the United States, and all material shall be written in the English language.

(4) Failure of the owner/operator to submit the requested information shall be cause for the director to deny the issuance of a permit to operate.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.822**

Source: 1997 AACS.

**R 408.824**

Source: 1983 AACS.

**R 408.825**

Source: 1983 AACS.

**R 408.826**

Source: 1983 AACS.

**R 408.827**

Source: 1983 AACS.

**R 408.828**

Source: 1983 AACS.

**R 408.829**

Source: 1983 AACS.

**R 408.830**

Source: 1983 AACS.

**R 408.831**

Source: 1983 AACS.

**R 408.832**

Source: 1983 AACS.

**R 408.833 Aerial passenger tramways; adoption by reference.**

Rule 33. The standards contained in the American national standards institute safety requirements for aerial passenger tramways, ANSI B77.1-1999, are adopted by reference for aerial passenger tramway amusement rides in this state. This incorporated standard may be purchased from the American National Standards Institute, 11 West 42ND Street, New York, NY 10036, Phone: 212/642-4900, Fax: 212/398-0023, at a cost of \$95.00 as of the time of adoption of these rules from the Michigan Department of Consumer and Industry Services, Bureau of Commercial Services, Carnival Amusement Safety Board, P.O. Box 30018, Lansing, Michigan 48909-7518 at a cost of \$110.00. A copy of this code, published by the American National Standards Institute, is available for inspection at the Department of Consumer and Industry Services, Bureau of Commercial Services, Carnival-Amusement Safety Board, 2501 Woodlake Circle, Okemos, Michigan, phone: 517/241-9233.

History: 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.834 Wire rope.**

Rule 34. (1) The owner/operator or person designated by the owner/operator shall thoroughly examine wire rope. Wire rope found to be damaged shall be condemned and replaced with new rope of proper design and capacity. Any of the following conditions shall be cause for rope replacement:

(a) In running ropes, 6 randomly distributed broken wires in 1 rope lay, or 3 broken wires in 1 strand in 1 rope lay. A rope lay is the length along the rope in which 1 strand makes a complete revolution around the rope.

(b) In pendants or standing ropes (ropes bearing the entire load and subjected to constant pressure and surge shocks),

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evidence of more than 1 broken wire in 1 rope lay.

(c) Abrasion, scrubbing, or peening causing loss of more than 1/3 of the original diameter of the outside wires.

(d) Severe corrosion.

(e) Severe kinking, severe crushing, or other damage resulting in distortion of the rope structure.

(f) Heat damage resulting from a torch or arc caused by contact with electrical wires.

(g) Reduction from normal diameter of more than 3/64 inch for diameters up to and including 3/4 inch; 1/16 inch for diameters 7/8 inch to 1-1/8 inches; 3/32 inch for diameters 1-1/4 inches to 1-1/2 inches. Marked reduction in diameter indicates deterioration of the core resulting in lack of proper support for the load-carrying strands. Excessive rope stretch or elongation may be an indication of internal deterioration.

(h) Bird-caging or other distortion resulting in some members of the rope structure carrying more load than others.

(i) Noticeable rusting or development of broken wires in the vicinity of attachments. If this condition is localized in an operating rope, the section in question can be eliminated by making a new attachment. This may be done rather than replacing the entire rope.

(2) Wire ropes used to support, suspend, bear, or control forces and weights involved in the movement and utilization of tubs, cars, chairs, seats, gondolas, other carriers, the sweeps or other supporting members of a ride or device shall not be lengthened or repaired by splicing.

(3) Couplings, sockets, and fittings shall be of a design and type approved by the board and installed in accordance with the instructions or specifications of the designer, engineer, or manufacturer.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.835**

**Source:** 1983 AACS.

**R 408.837 Ride location.**

Rule 37. (1) A ride shall be placed on solid footings and shall be secured to prevent shifting, tipping, swaying, or erratic motion. The provision pertinent to erratic motion or sway does not apply to a ride designed to permit flotation characteristics or flexibility. Use of shim blocks shall be kept to a minimum. Depressions in the ground near the ride footings shall be filled and tamped and adequate means of drainage shall be provided to prevent water from collecting and softening supporting areas. The area surrounding the ride shall be clear and shall be kept free from trash and tripping hazards.

(2) A fixed ride permanently erected in an amusement park shall be set on properly designed and constructed foundations or footings and shall be secured to these footings in a manner to prevent shifting, tipping, swaying, or erratic motion. The provision pertinent to erratic motion or sway does not apply to a ride designed to permit flotation characteristics or flexibility.

(3) A ride shall not operate at 1 location for more than 30 days unless either approved foundations or footings are installed, according to the recommendations of the manufacturer.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1954 ACS 86, Eff. Jan. 16, 1976; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.838 Leveling and alignment.**

Rule 38. Corner posts, central columns, or support structures of a ride designed to operate on a perpendicular axis shall be plumb and secured so that the path of the sweeps or platforms shall be level and operate on a true horizontal plane at right angles to the axis of the pivot. A ride with carriers designed to operate on a horizontal axis shall be leveled so that the carriers orbit in a true perpendicular plane. The base of a ride that has a combination of orbiting planes or a ride that has carriers that operate normally in a plane other than true horizontal or vertical shall be leveled and plumbed and secured so that they will not tip or shift and will be stable under the most adverse operating conditions, except for a ride designed to permit flotation characteristics or flexibility or designed to operate properly whether the base is plumb or level or not.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.839**

**Source:** 1996 AACS.

**R 408.839a Water slides.**

Rule 39a. A water slide that conveys passengers shall, in addition to other applicable rules, be in compliance with all of the following requirements:

(a) Each water slide shall be designed and constructed to have a minimum safety factor of 2.

(b) Each water slide shall be designed and constructed to retain the passengers within the water slide during the ride.

(c) At each loading area, a hard surface which is other than earth and which is reasonably level shall be provided. The surface



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shall be large enough to accommodate the intended quantity of passengers.

(d) If the elevation of a loading surface of a water slide is more than 12 inches above the elevation of an adjacent area, then guardrails shall be installed on the exposed sides of the loading area.

(e) A water slide may terminate in a swimming pool or in a body of water such as a lake, river, stream, or artificial lake or reservoir. The design of the slide and its termination point shall meet the requirements of the act and these rules.

(f) If the landing area or runout of a waterslide is in a public swimming pool, the landing area or runout of the waterslide shall be specified by the designer in accordance with R 408.821 of these rules. Swimming in this area, other than to exit the flume or landing or runout area, is prohibited.

(g) If the landing area or runout of a waterslide is in an enclosed tank or in a pool used only to exit the waterslide ride, the landing area or runout shall be specified by the designer in accordance with R 408.821 of these rules. This landing area or runout is not a public swimming pool.

(h) The quality of the water in a swimming pool termination point is governed by rules for public swimming pools promulgated pursuant to the provisions of 1978 PA 368, MCL 333.12522, and administered by the department of environmental quality. The quality of water in a termination point other than a swimming pool is governed by rules for bathing beach water quality promulgated pursuant to the provisions of 1978 PA 368, MCL 333.12544, and administered by the department of environmental quality.

(i) A water slide shall have at least 1 attendant located at the loading area at all times when the ride is being operated for the use of the public. A water slide attendant shall be trained, prepared, and capable of controlling the frequency of departure of passengers from the loading area. The design and operation of a loading area common to more than 1 course shall permit an attendant to remain knowledgeable of the disposition of each passenger. One attendant shall be sufficient to dispatch riders on more than 1 course from a common loading area, if a mechanical system or operational controls are used to regulate rider dispatch on each affected course.

(j) There shall be at least 1 attendant in the unloading area at all times when the ride is being operated for the use of the public. An attendant in an unloading area shall be trained in cardiopulmonary resuscitation and shall be trained, prepared, and capable of assisting any passenger exiting the water slide. One attendant shall be sufficient to operate the termination point common to more than 1 water slide, if the owner-operator of the water slide shall provide sufficient attendants in the unloading area to ensure that each attendant can scan the entire area for which he or she is responsible every 10 seconds and respond within the area within 20 seconds.

(k) If the entire water slide is not visible to the attendant at the loading area or if the attendant is controlling entry to multiple courses, then some form of 2-way communication shall be provided between the attendants of the ride to ensure that passenger loading is stopped if there are problems.

History: 1996 MR 7, Eff. Aug. 1, 1996; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.841 Hazardous conditions.**

Rule 41. During a lightning storm, high-wind storm, a period of tornado alert or warning, or fire, or when violence, riot, or other civil disturbance occurs or threatens to occur in an amusement park, a carnival lot, or in an adjacent area, passengers shall be evacuated from a ride and the ride shall be shut down and secured immediately. Operation shall not resume until the situation has returned to a normal, safe operating condition.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.843 Personal injuries and deaths.**

Rule 43. (1) Provision shall be made to render first aid when persons are injured on or around any ride.

(2) An owner/operator shall report, in writing to the department, an accident resulting in injury to any person within 24 hours after occurrence.

(3) In addition to the requirements of subrule (2) of this rule, the owner/operator shall immediately report to the department by telephone any accident in which a fatality occurs or a person suffers a fracture, concussion, laceration, or other traumatic injury requiring immediate surgical or medical care resulting from structural or mechanical failure of a ride, or in which it might appear that the construction, design, or function of the ride is directly involved. If an accident specified in this subrule occurs on a non-workday of the department, the owner/operator shall report the incident to the department by 9:00 a.m. of the next business day. The department, after consultation with the owner/operator, may require that the scene of an accident be secured and not disturbed to any greater extent than necessary for removal of the deceased or injured persons. If a ride is removed from service due to an accident, the department shall order an immediate investigation of the secured site and the ride shall be released for repair and operation only after the investigation is completed.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.844 Mechanical failure reports.**

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Rule 44. The owner/operator of a carnival-amusement ride shall report a major breakdown to the department within 24 hours after occurrence of the incident by telephone or other media of immediate communication. The owner/operator shall confirm this report using the form provided by the department. This report shall be forwarded to the department within 7 days after the occurrence of the reportable incident. Upon being advised of a major breakdown, the department may order the ride to be withheld from operation and the department shall conduct an immediate investigation. The ride shall be released for repair and operation only after completion of the department investigation.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.846**

**Source:** 1983 AACS.

**R 408.848**

**Source:** 1996 AACS.

**R 408.849**

**Source:** 1983 AACS.

**R 408.851**

**Source:** 1983 AACS.

**R 408.852 Air compressors.**

Rule 52. An air compressor, including the tanks, piping, and safety equipment, in an amusement park or carnival shall be constructed, equipped, and maintained to ensure safe operation at all times. An air receiver shall be constructed and a safety relief valve shall be constructed, installed, and maintained in accordance with the American society of mechanical engineers' boiler and pressure vessel code, section VIII, 1998 edition, which is adopted by reference and which may be inspected at the Lansing office of the Michigan Department of Consumer and Industry Services, Bureau of Commercial Services, 2501 Woodlake Circle, Okemos, Michigan, phone: 517/241-9233. The standard may be purchased from the American Society of Mechanical Engineers, 22 Law Drive, Fairfield, New Jersey 07007, at a cost as of the time of adoption of these rules of \$385.00, or from the Michigan Department of Consumer and Industry Services, Bureau of Commercial Services, 2501 Woodlake Circle, Okemos, Michigan, mail address: P.O. Box 30018, Lansing, Michigan 48909-7518, at a cost of \$440.00 each.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 1979 ACS 14, Eff. Apr. 23, 1983; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.854**

**Source:** 1983 AACS.

**R 408.856**

**Source:** 1983 AACS.

**PART 3. PROCEDURES**

**R 408.871**

**Source:** 1983 AACS.

**R 408.872**

**Source:** 1983 AACS.

**R 408.873**

**Source:** 1983 AACS.

**R 408.874**

**Source:** 1983 AACS.

**R 408.876 Rescinded.**

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1954 ACS 86, Eff. Jan. 16, 1976; 1979 AC; rescinded 2003 MR 1, Eff. Jan. 17, 2003.

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**R 408.877 Permit and inspection fees; receipt and disbursement.**

Rule 77. (1) Revenue from permits, annual inspections, reinspections, special inspector commissions, or for any other services or requirements prescribed by the act or the rules shall be paid to the department. Checks for these fees shall be made payable to "State of Michigan."

(2) An owner/operator or his or her agent or representative is not required to make payment in any form for any service or any cause or purpose to an inspector or other representative of the department or the board.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.881 Functions of department generally.**

Rule 81. (1) The department shall administer and enforce the provisions of the act and the rules promulgated in accordance with the provisions of the act, and shall do all of the following:

(a) Receive and review applications for permits to operate rides and devices and for special inspector commissions.

(b) Receive and issue receipts for all of the following:

(i) Fees for permits to operate rides and devices.

(ii) Fees for inspection for authorization to operate individual rides and devices.

(iii) Fees for special inspector commissions.

(iv) Fees for reinspections.

(c) Determine whether or not an applicant for a permit to operate rides or devices or for a special inspector commission conforms to these rules for the issuance of a permit or commission and reject an application upon good cause.

(d) Issue, upon payment of the proper fees, permits to operate rides and devices, identification symbols, special inspector commissions to qualified applicants, and authorization to operate specific rides and devices conforming to these rules.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.882 Granting of waivers or variances by the department.**

Rule 82. (1) The department may, in consultation with the board, grant a waiver or variance in a situation where practical difficulties or unnecessary hardship to comply with the rules is established so long as public safety is secured.

(2) An owner/operator or other person subject to the act or these rules shall file a written request for a waiver or variance with the department in accordance with the provisions of R 408.891.

(3) The department shall notify the owner/operator, in writing, of the department's decision to grant or to deny a waiver or variance. If a waiver or variance is granted by the department, the written notice to the owner/operator shall describe the conditions under which the waiver or variance is permitted, and a time limit, if any. A record of the waiver or variance shall be kept at the Department of Consumer and Industry Services, Bureau of Commercial Services 2501 Woodlake Circle, Okemos, Michigan, and be open to inspection by the public.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.885 Suspension and revocation of permits to operate.**

Rule 85. The department, subject to the appeal provisions in R 408.891, may suspend or revoke the permit to operate of an owner/operator for any of the following:

(a) Gross negligence.

(b) Repeated disregard of inspection standards.

(c) Misrepresentation of material information required as part of the application for a permit to operate.

(d) Failure to comply with a safety order issued by the department.

(e) Conduct in the operation of a carnival or an amusement park with disregard for public safety and welfare.

(f) Lapsing of the required insurance coverage.

(g) Failure to pay fees within 30 days after issuance of authorization to operate rides or devices that are required under the provisions of the act and these rules.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1954 ACS 59, Eff. Aug. 14, 1969; 1979 AC; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.886 Suspension and revocation of special inspectors' commissions.**

Rule 86. The department, subject to the appeal provisions in R.408.891, may suspend or revoke a special inspector commission for any of the following:

(a) Gross incompetence or gross negligence in the performance of duties and responsibilities for which a commission is granted.

(b) Misrepresentation.

(c) Violation of the act or these rules.

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(d) Other conduct prejudicial to the safe and proper operation and maintenance of a ride or device and capable of affecting the public safety and welfare.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.887 Functions of special inspectors or owner/operators.**

Rule 87. A special inspector or the owner/operator shall do all of the following:

(a) Certify to the daily inspection reports required by these rules which he or she has prepared and completed or caused to be prepared and completed.

(b) Be responsible for making prompt and timely reports of all matters requiring reports as provided by the act or these rules.

(c) Be present on the premises when a ride or device is being operated for use by the public. The number of special inspectors required shall be determined by the department and shall be in reasonable ratio to the number of rides and devices being operated.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 2003 MR 1, Eff. Jan. 17, 2003.

**PART 4. PARTICIPATORY RIDES—GO-KARTS**

**R 408.891 Requests for waivers or variances; appeals of denials or suspension of permits; procedures.**

Rule 91. (1) An owner/operator or other individual who seeks a waiver or variance to a requirement in these rules may file a request with the department for a review by the carnival amusement safety board. The request shall be in writing and describe the reason for the requested variance and indicate the means by which public safety will be assured if the variance is granted.

(2) The department shall notify the person filing a request for a variance of the date and location of the board meeting at which the appeal will be reviewed and may request additional information to support the request.

(3) Owners/operators filing a request for a waiver or variance have the right to appear before the board to provide information and answer questions. However, personal appearance before the board is not mandatory for a request for a waiver or variance to be considered.

(4) The department shall notify, in writing, the persons filing a request for a waiver or variance whether the request is granted or denied.

(5) If the request for waiver or variance is denied, owners/operators may file an appeal, in writing, for reconsideration of the denial and have the right to appear before the board and to be represented by counsel. However, personal appearance before the board is not mandatory for an appeal to be considered.

(6) Owners/operators who have been affected by a decision of the department based upon R 408.885 or 408.886 may also file an appeal, in writing, for review of the decision.

(7) The department shall notify persons filing an appeal of the final decision in writing.

(8) A record of appeals and their disposition shall be retained in the offices of the Department of Consumer and Industry Services, Bureau of Commercial Services, 2501 Woodlake Circle, Okemos, Michigan, and be available for public inspection.

History: 1954 ACS 52, Eff. Nov. 15, 1967; 1979 AC; 2003 MR 1, Eff. Jan. 17, 2003.

**R 408.891a**

**Source:** 1998-2000 AACS.

**R 408.893**

**Source:** 1998-2000 AACS.

**R 408.895**

**Source:** 1998-2000 AACS.

**R 408.897**

**Source:** 1998-2000 AACS.

**PART 5. SIGNS AND SAFETY WARNINGS**

**R 408.898 Signs and safety warnings; requirements.**

Rule 98. (1) An owner/operator shall display legible signs at all locations required in section 19 (1) of the act, as follows:

(a) Signs shall be a minimum size of 18 inches by 24 inches, with the size of printed lettering in proportion to the size of the sign.

(b) Signs at park entrances and other locations defined in section 19(1) of the act shall have standard language to indicate rider responsibilities defined in section 18(1) and (2) of the act as follows:

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THE FOLLOWING STATE LAW REQUIREMENTS WILL HELP TO ASSURE YOUR SAFETY.

PLEASE OBEY ALL POSTED SAFETY RULES AND ORAL INSTRUCTIONS FROM RIDE OPERATORS:

Avoid any action that may injure you or others.  
Stay within the limits of your ability.  
Use safety devices at all times.  
Do not interfere with safety devices.  
Do not disconnect or disable safety devices.  
Do not touch the operator's controls.  
Do not extend your arms or legs beyond the carrier or seating areas.  
Do not throw or drop any object from or towards a ride.  
Get off ride properly at the designated time and place.  
Control the speed or direction of the ride or your body as instructed.  
Do not interfere with safe operation of any ride.  
Do not swing or bounce on rides unless instructed.

YOU MAY NOT GET ON A RIDE UNLESS:

You know how to get on, use, and get off the ride.  
You have read, understood, and meet each ride's posted signs and safety requirements.  
You know the limits of your ability and that the ride will not exceed your limits.  
You are not under the influence of alcohol or drugs.  
You are authorized by the operator to get on the ride.

(2) Operators may customize wording on signs posted at individual carnival amusement rides, as required by section 19(2) of the act. Signs at individual rides shall include the specific instructions necessary for safe operation of the ride. The signs shall include all of the following categories of information:

- (a) Operational instructions.
- (b) Safety guidelines for riders.
- (c) Restrictions on use of the ride.
- (d) Behavior or activities which are prohibited.

(3) To comply with sections 18, 19, and 20 of the act, all signs shall include the following statement:

"State law requires riders to obey all warnings and directions for carnival or amusement rides, and behave in a manner that will not cause or contribute to the injury of themselves or others. Riders must report injuries prior to leaving the premises."

(4) The location for reporting injuries shall be listed in bold letters at the bottom of each sign.

History: 2003 MR 1, Eff. Jan. 17, 2003.

**BOILERS**

**PART 1. GENERAL PROVISIONS**

**R 408.4011**

**Source:** 1998-2000 AACS.

**R 408.4012**

**Source:** 2002 AACS.

**R 408.4013**

**Source:** 1998-2000 AACS.

**R 408.4015**

**Source:** 1998-2000 AACS.

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**R 408.4017**  
Source: 1998-2000 AACS.

**R 408.4019**  
Source: 1998-2000 AACS.

**R 408.4021**  
Source: 1998-2000 AACS.

**R 408.4023**  
Source: 1998-2000 AACS.

**R 408.4024**  
Source: 2002 AACS.

**R 408.4025**  
Source: 2002 AACS.

**R 408.4026**  
Source: 1998-2000 AACS.

**R 408.4027**  
Source: 2002 AACS.

**R 408.4028**  
Source: 1995 AACS.

**R 408.4031**  
Source: 2002 AACS.

**R 408.4032**  
Source: 2002 AACS.

**R 408.4033**  
Source: 2002 AACS.

**R 408.4035**  
Source: 1995 AACS.

**R 408.4038**  
Source: 2002 AACS.

**R 408.4039**  
Source: 1998-2000 AACS.

**R 408.4043**  
Source: 1997 AACS.

**R 408.4047**  
Source: 1998-2000 AACS.

**R 408.4049**  
Source: 1981 AACS.

**R 408.4051**  
Source: 1981 AACS.

**R 408.4052**  
Source: 2002 AACS.

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- R 408.4053**  
Source: 1997 AACS.
- R 408.4055**  
Source: 1998-2000 AACS.
- R 408.4057**  
Source: 2002 AACS.
- R 408.4058**  
Source: 2002 AACS.
- R 408.4059**  
Source: 2002 AACS.
- R 408.4061**  
Source: 1997 AACS.
- R 408.4063**  
Source: 1997 AACS.
- R 408.4071**  
Source: 1995 AACS.
- R 408.4073**  
Source: 2002 AACS.
- R 408.4075**  
Source: 1995 AACS.
- R 408.4077**  
Source: 2002 AACS.
- R 408.4079**  
Source: 1981 AACS.
- R 408.4081**  
Source: 1995 AACS.
- R 408.4087**  
Source: 2002 AACS.
- R 408.4091**  
Source: 2002 AACS.
- R 408.4093**  
Source: 2002 AACS.
- R 408.4095**  
Source: 1997 AACS.
- R 408.4096**  
Source: 1998-2000 AACS.
- R 408.4099**  
Source: 2002 AACS.
- R 408.4101**  
Source: 2002 AACS.

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**R 408.4103**  
Source: 2002 AACS.

**R 408.4105**  
Source: 1981 AACS.

**R 408.4107**  
Source: 2002 AACS.

**R 408.4109**  
Source: 2002 AACS.

**R 408.4110**  
Source: 1997 AACS.

**R 408.4111**  
Source: 2002 AACS.

**R 408.4113**  
Source: 1997 AACS.

**R 408.4114**  
Source: 1998-2000 AACS.

**R 408.4115**  
Source: 2002 AACS.

**R 408.4116**  
Source: 2002 AACS.

**R 408.4119**  
Source: 2002 AACS.

**R 408.4120**  
Source: 1997 AACS.

**R 408.4121**  
Source: 2002 AACS.

**R 408.4122**  
Source: 2002 AACS.

**R 408.4123**  
Source: 1981 AACS.

**R 408.4124**  
Source: 2002 AACS.

**R 408.4125**  
Source: 2002 AACS.

**R 408.4127**  
Source: 1998-2000 AACS.

**R 408.4129**  
Source: 2002 AACS.



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**R 408.4133**  
Source: 2002 AACS.

**R 408.4139**  
Source: 1995 AACS.

**R 408.4143**  
Source: 1981 AACS.

**R 408.4149**  
Source: 2002 AACS.

**R 408.4153**  
Source: 2002 AACS.

**R 408.4159**  
Source: 1997 AACS.

**R 408.4163**  
Source: 2002 AACS.

**R 408.4169**  
Source: 1995 AACS.

**R 408.4172**  
Source: 1995 AACS.

**R 408.4173**  
Source: 2002 AACS.

**R 408.4174**  
Source: 1997 AACS.

**R 408.4175**  
Source: 2002 AACS.

**R 408.4177**  
Source: 2002 AACS.

**R 408.4179**  
Source: 2002 AACS.

**R 408.4181**  
Source: 1997 AACS.

**R 408.4182**  
Source: 2002 AACS.

**R 408.4183**  
Source: 1997 AACS.

**R 408.4184**  
Source: 1997 AACS.

**R 408.4185**  
Source: 1995 AACS.

**R 408.4186**  
Source: 1995 AACS.

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**R 408.4187**  
Source: 2002 AACS.

**R 408.4189**  
Source: 2002 AACS.

**R 408.4191**  
Source: 1997 AACS.

**R 408.4193**  
Source: 2002 AACS.

**R 408.4195**  
Source: 1998-2000 AACS.

**R 408.4197**  
Source: 2002 AACS.

**PART 2. EXISTING INSTALLATIONS  
STEAM BOILERS**

**R 408.4214**  
Source: 1995 AACS.

**R 408.4270**  
Source: 1985 AACS.

**R 408.4275**  
Source: 1997 AACS.

**PART 3. INSPECTION AND TESTING FOR NEW CONSTRUCTION;  
INSTALLATION AND ALTERATION OF BOILERS AND PIPING**

**R 408.4301**  
Source: 2002 AACS.

**R 408.4302**  
Source: 2002 AACS.

**R 408.4303**  
Source: 1995 AACS.

**R 408.4304**  
Source: 2002 AACS.

**R 408.4306**  
Source: 1997 AACS.

**R 408.4309**  
Source: 1997 AACS.

**R 408.4312**  
Source: 1997 AACS.

**R 408.4315**  
Source: 1997 AACS.

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**R 408.4318**  
Source: 1997 AACs.

**R 408.4321**  
Source: 1997 AACs.

**R 408.4324**  
Source: 1997 AACs.

**R 408.4327**  
Source: 1997 AACs.

**R 408.4330**  
Source: 1997 AACs.

**R 408.4333**  
Source: 1997 AACs.

**R 408.4336**  
Source: 1997 AACs.

**R 408.4339**  
Source: 1997 AACs.

**R 408.4342**  
Source: 1997 AACs.

**R 408.4345**  
Source: 1997 AACs.

**R 408.4348**  
Source: 1997 AACs.

**R 408.4351**  
Source: 1997 AACs.

**R 408.4354**  
Source: 1997 AACs.

**R 408.4357**  
Source: 1997 AACs.

**R 408.4360**  
Source: 1997 AACs.

**R 408.4363**  
Source: 1997 AACs.

**R 408.4366**  
Source: 1997 AACs.

**R 408.4369**  
Source: 1997 AACs.

**R 408.4372**  
Source: 1997 AACs.

**R 408.4375**  
Source: 1997 AACs.

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**R 408.4378**  
Source: 1997 AACS.

**R 408.4381**  
Source: 1997 AACS.

**R 408.4384**  
Source: 1997 AACS.

**R 408.4387**  
Source: 1997 AACS.

**R 408.4390**  
Source: 1997 AACS.

**R 408.4393**  
Source: 1997 AACS.

**R 408.4396**  
Source: 1997 AACS.

**PART 4. INSPECTION OF FUSION WELDING**

**R 408.4401**  
Source: 1997 AACS.

**R 408.4402**  
Source: 1997 AACS.

**R 408.4405**  
Source: 1997 AACS.

**R 408.4407**  
Source: 1997 AACS.

**R 408.4409**  
Source: 1997 AACS.

**R 408.4410**  
Source: 1997 AACS.

**R 408.4412**  
Source: 1997 AACS.

**R 408.4414**  
Source: 1997 AACS.

**R 408.4416**  
Source: 1997 AACS.

**R 408.4418**  
Source: 1997 AACS.

**R 408.4420**  
Source: 1997 AACS.

**R 408.4422**  
Source: 1997 AACS.

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**R 408.4424**  
Source: 1997 AACs.

**R 408.4426**  
Source: 1997 AACs.

**R 408.4428**  
Source: 1997 AACs.

**R 408.4430**  
Source: 1997 AACs.

**R 408.4432**  
Source: 1997 AACs.

**R 408.4434**  
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**R 408.4436**  
Source: 1997 AACs.

**R 408.4438**  
Source: 1997 AACs.

**R 408.4440**  
Source: 1997 AACs.

**R 408.4442**  
Source: 1997 AACs.

**R 408.4444**  
Source: 1997 AACs.

**R 408.4446**  
Source: 1997 AACs.

**R 408.4448**  
Source: 1997 AACs.

**R 408.4450**  
Source: 1997 AACs.

**R 408.4452**  
Source: 1997 AACs.

**R 408.4454**  
Source: 1997 AACs.

**R 408.4456**  
Source: 1997 AACs.

**R 408.4458**  
Source: 1997 AACs.

**R 408.4460**  
Source: 1997 AACs.

**R 408.4462**

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**Source:** 1997 AACS.

**R 408.4466**

**Source:** 1997 AACS.

**R 408.4468**

**Source:** 1997 AACS.

**R 408.4470**

**Source:** 1997 AACS.

**R 408.4472**

**Source:** 1997 AACS.

**R 408.4474**

**Source:** 1997 AACS.

**R 408.4476**

**Source:** 1997 AACS.

**R 408.4478**

**Source:** 1997 AACS.

**R 408.4480**

**Source:** 1997 AACS.

**R 408.4482**

**Source:** 1997 AACS.

**R 408.4484**

**Source:** 1997 AACS.

**R 408.4486**

**Source:** 1997 AACS.

**R 408.4488**

**Source:** 1997 AACS.

**R 408.4489**

**Source:** 1997 AACS.

**R 408.4490**

**Source:** 1997 AACS.

**R 408.4491**

**Source:** 1997 AACS.

**R 408.4492**

**Source:** 1997 AACS.

**R 408.4493**

**Source:** 1997 AACS.

**R 408.4494**

**Source:** 1997 AACS.

**R 408.4495**

**Source:** 1997 AACS.

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**R 408.4496**  
Source: 1997 AACS.

**R 408.4497**  
Source: 1997 AACS.

**R 408.4498**  
Source: 1997 AACS.

**R 408.4499**  
Source: 1997 AACS.

**PART 5. INSERVICE INSPECTION OF BOILERS**

**R 408.4501**  
Source: 2002 AACS.

**R 408.4502**  
Source: 2001 AACS.

**R 408.4503**  
Source: 1995 AACS.

**R 408.4505**  
Source: 1998-2000 AACS.

**R 408.4507**  
Source: 2002 AACS.

**R 408.4511**  
Source: 1998-2000 AACS.

**R 408.4512**  
Source: 1998-2000 AACS.

**R 408.4513**  
Source: 1998-2000 AACS.

**R 408.4515**  
Source: 1998-2000 AACS.

**R 408.4517**  
Source: 1998-2000 AACS.

**R 408.4518**  
Source: 1998-2000 AACS.

**R 408.4522**  
Source: 1995 AACS.

**R 408.4524**  
Source: 1998-2000 AACS.

**R 408.4526**  
Source: 1998-2000 AACS.

**R 408.4529**  
Source: 1998-2000 AACS.

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**R 408.4531**  
Source: 1998-2000 AACS.

**R 408.4534**  
Source: 1998-2000 AACS.

**R 408.4536**  
Source: 1998-2000 AACS.

**R 408.4538**  
Source: 1998-2000 AACS.

**R 408.4540**  
Source: 1997 AACS.

**R 408.4542**  
Source: 1997 AACS.

**R 408.4545**  
Source: 1998-2000 AACS.

**R 408.4547**  
Source: 1998-2000 AACS.

**R 408.4550**  
Source: 1998-2000 AACS.

**R 408.4552**  
Source: 1997 AACS.

**R 408.4554**  
Source: 1998-2000 AACS.

**R 408.4556**  
Source: 1997 AACS.

**R 408.4559**  
Source: 1998-2000 AACS.

**R 408.4561**  
Source: 1998-2000 AACS.

**R 408.4566**  
Source: 1998-2000 AACS.

**R 408.4569**  
Source: 1998-2000 AACS.

**R 408.4570**  
Source: 1995 AACS.

**R 408.4572**  
Source: 1998-2000 AACS.

**R 408.4578**  
Source: 1998-2000 AACS.



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**R 408.4580**  
Source: 1998-2000 AACS.

**R 408.4583**  
Source: 1998-2000 AACS.

**R 408.4586**  
Source: 1998-2000 AACS.

**R 408.4590**  
Source: 1998-2000 AACS.

**PART 6. REPAIR OF BOILERS  
SCOPE OF RULES FOR REPAIR BY RIVETING**

**R 408.4601**  
Source: 2002 AACS.

**R 408.4602**  
Source: 1995 AACS.

**R 408.4603**  
Source: 1995 AACS.

**R 408.4604**  
Source: 1995 AACS.

**R 408.4605**  
Source: 1995 AACS.

**R 408.4606**  
Source: 1995 AACS.

**R 408.4607**  
Source: 1995 AACS.

**R 408.4608**  
Source: 1995 AACS.

**R 408.4609**  
Source: 1995 AACS.

**R 408.4610**  
Source: 1995 AACS.

**R 408.4611**  
Source: 1995 AACS.

**R 408.4612**  
Source: 1995 AACS.

**R 408.4613**  
Source: 1995 AACS.

**R 408.4614**  
Source: 1995 AACS.

**R 408.4615**

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**Source:** 1995 AACS.

**R 408.4616**

**Source:** 1995 AACS.

**R 408.4617**

**Source:** 1995 AACS.

**R 408.4618**

**Source:** 1995 AACS.

**R 408.4619**

**Source:** 1995 AACS.

**R 408.4620**

**Source:** 1995 AACS.

**R 408.4621**

**Source:** 1998-2000 AACS.

**R 408.4622**

**Source:** 1995 AACS.

**R 408.4623**

**Source:** 1995 AACS.

**R 408.4624**

**Source:** 1995 AACS.

**R 408.4625**

**Source:** 1995 AACS.

**SCOPE OF RULES FOR REPAIR BY WELDING**

**R 408.4626**

**Source:** 1998-2000 AACS.

**R 408.4627**

**Source:** 1998-2000 AACS.

**R 408.4628**

**Source:** 1995 AACS.

**R 408.4631**

**Source:** 1998-2000 AACS.

**R 408.4633**

**Source:** 1998-2000 AACS.

**R 408.4635**

**Source:** 1997 AACS.

**R 408.4637**

**Source:** 2002 AACS.

**R 408.4639**

**Source:** 1997 AACS.

**R 408.4641**

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**Source:** 1997 AACS.

**R 408.4643**

**Source:** 1998-2000 AACS.

**R 408.4645**

**Source:** 1997 AACS.

**R 408.4647**

**Source:** 1998-2000 AACS.

**R 408.4649**

**Source:** 1998-2000 AACS.

**R 408.4650**

**Source:** 1998-2000 AACS.

**R 408.4651**

**Source:** 1998-2000 AACS.

**R 408.4653**

**Source:** 1997 AACS.

**R 408.4655**

**Source:** 1997 AACS.

**R 408.4657**

**Source:** 1997 AACS.

**R 408.4659**

**Source:** 1998-2000 AACS.

**R 408.4660**

**Source:** 1995 AACS.

**R 408.4661**

**Source:** 1998-2000 AACS.

**R 408.4662**

**Source:** 1997 AACS.

**R 408.4664**

**Source:** 1997 AACS.

**R 408.4666**

**Source:** 1997 AACS.

**R 408.4667**

**Source:** 1995 AACS.

**R 408.4668**

**Source:** 1998-2000 AACS.

**R 408.4670**

**Source:** 1998-2000 AACS.

**R 408.4671**

**Source:** 1998-2000 AACS.

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**R 408.4672**  
Source: 1998-2000 AACS.

**R 408.4674**  
Source: 1997 AACS.

**R 408.4675**  
Source: 1998-2000 AACS.

**R 408.4676**  
Source: 1998-2000 AACS.

**R 408.4677**  
Source: 1997 AACS.

**R 408.4678**  
Source: 1997 AACS.

**R 408.4679**  
Source: 1997 AACS.

**R 408.4680**  
Source: 1998-2000 AACS.

**R 408.4682**  
Source: 1998-2000 AACS.

**R 408.4683**  
Source: 1998-2000 AACS.

**R 408.4684**  
Source: 2001 AACS.

**R 408.4686**  
Source: 2001 AACS.

**R 408.4687**  
Source: 2001 AACS.

**R 408.4688**  
Source: 2001 AACS.

**R 408.4689**  
Source: 1995 AACS.

**R 408.4690**  
Source: 2001 AACS.

**R 408.4691**  
Source: 2001 AACS.

**R 408.4692**  
Source: 1997 AACS.

**R 408.4693**  
Source: 1998-2000 AACS.

**R 408.4694**

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**Source:** 1998-2000 AACS.

**R 408.4695**

**Source:** 1998-2000 AACS.

**R 408.4696**

**Source:** 1997 AACS.

**R 408.4697**

**Source:** 1998-2000 AACS.

**PART 7. BOILER BLOWOFF SYSTEMS**

**R 408.4701**

**Source:** 1998-2000 AACS.

**R 408.4704**

**Source:** 1995 AACS.

**R 408.4711**

**Source:** 2002 AACS.

**R 408.4715**

**Source:** 1997 AACS.

**R 408.4719**

**Source:** 1997 AACS.

**R 408.4723**

**Source:** 1997 AACS.

**R 408.4727**

**Source:** 1995 AACS.

**R 408.4731**

**Source:** 1995 AACS.

**R 408.4739**

**Source:** 2002 AACS.

**R 408.4747**

**Source:** 1995 AACS.

**R 408.4750**

**Source:** 2002 AACS.

**R 408.4756**

**Source:** 1997 AACS.

**R 408.4762**

**Source:** 1997 AACS.

**R 408.4768**

**Source:** 1997 AACS.

**R 408.4774**

**Source:** 1997 AACS.

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**R 408.4780**  
Source: 1997 AACS.

**R 408.4786**  
Source: 1997 AACS.

**R 408.4792**  
Source: 1997 AACS.

**R 408.4798**  
Source: 1997 AACS.

**PART 8. CONTROLS**

**R 408.4801**  
Source: 1995 AACS.

**FUEL CUTOFFS AND FEEDWATER REGULATORS**

**R 408.4853**  
Source: 1995 AACS.

**R 408.4857**  
Source: 1998-2000 AACS.

**R 408.4859**  
Source: 1997 AACS.

**R 408.4861**  
Source: 1997 AACS.

**R 408.4863**  
Source: 1997 AACS.

**R 408.4865**  
Source: 1997 AACS.

**R 408.4869**  
Source: 1997 AACS.

**R 408.4871**  
Source: 1997 AACS.

**R 408.4873**  
Source: 1997 AACS.

**R 408.4876**  
Source: 1997 AACS.

**R 408.4879**  
Source: 1997 AACS.

**R 408.4882**  
Source: 1997 AACS.

**R 408.4885**  
Source: 1997 AACS.

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**R 408.4888**  
Source: 1997 AACS.

**R 408.4890**  
Source: 1997 AACS.

**PART 9. LOW-PRESSURE SIDE OF REDUCING VALVES**

**R 408.4901**  
Source: 1997 AACS.

**R 408.4910**  
Source: 1997 AACS.

**R 408.4920**  
Source: 1997 AACS.

**R 408.4930**  
Source: 1997 AACS.

**R 408.4940**  
Source: 1997 AACS.

**R 408.4950**  
Source: 1997 AACS.

**R 408.4960**  
Source: 1997 AACS.

**R 408.4970**  
Source: 1997 AACS.

**R 408.4980**  
Source: 1997 AACS.

**R 408.4990**  
Source: 1997 AACS.

**PART 15. HEARINGS**

**R 408.5501**  
Source: 1995 AACS.

**R 408.5502**  
Source: 1997 AACS.

**R 408.5503**  
Source: 1997 AACS.

**R 408.5504**  
Source: 1997 AACS.

**R 408.5505**  
Source: 1997 AACS.

**R 408.5506**  
Source: 1997 AACS.

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**R 408.5507**

**Source:** 1997 AACS.

**DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES**

**BUREAU OF SAFETY AND REGULATION**

**OCCUPATIONAL SAFETY STANDARDS COMMISSION**

**GENERAL RULES**

**R 408.6171**

**Source:** 1998-2000 AACS.

**BUREAU OF EMPLOYMENT STANDARDS**

**YOUTH EMPLOYMENT STANDARDS**

**PART 1. GENERAL PROVISIONS**

**R 408.6199**

**Source:** 1988 AACS.

**PART 2. HAZARDOUS OCCUPATIONS IN GENERAL EMPLOYMENT**

**R 408.6201**

**Source:** 1988 AACS.

**R 408.6202 Employment in hazardous occupations prohibited; deviation from rules.**

Rule 202. (1) A minor shall not be employed in any of the occupations declared to be hazardous by this part.

(2) Deviations from these rules may be granted by the director of the department or his or her designee when it is determined to be in the best interests of the minor and the community.

History: 1988 MR 6, Eff. July 14, 1988; 2003 MR 14, Eff. July 30, 2003.

**R 408.6203 Definitions; A to E.**

Rule 203. As used in this part:

(a) "Act" means 1978 PA 90, MCL 409.101 et seq.

(b) "Clay construction products" means all of the following:

(i) Brick.

(ii) Hollow structural tile.

(iii) Sewer pipe and kindred products.

(iv) Refractories.

(v) Other clay products, such as any of the following:

(A) Architectural terra cotta.

(B) Glazed structural tile.

(C) Roofing tile.

(D) Stove lining.

(E) Chimney pipes and tops.

(F) Wall coping.

(G) Drain tile.

(c) "Confined space" means an enclosed area which does not have a natural or mechanically induced supply of fresh air, including all of the following:

(A) A bin.

(B) A tank.



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(C) A vessel.

(D) A vault.

(E) A well.

(d) "Construction operation" means the work performed in major groups

15, 16, and 17 of the standard industrial classification (SIC) manual, United States bureau of the budget, 1972 edition. Major groups 15, 16, and 17 of the standard industrial classification (SIC) manual, United States bureau of the budget, 1972 edition, are adopted by reference and may be inspected at the Lansing office of the department. The SIC manual may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. , at a cost of \$24.00. Major groups 15, 16, and 17 of the SIC manual are available for inspection at, or may be purchased from the Michigan Department of Consumer & Industry Services, Bureau of Workers' & Unemployment Compensation, 7150 Harris Drive, P.O. Box 30015, Lansing, MI 48909, at a cost of \$2.00.

(e) "Crane" means a power-driven machine which is for lifting and lowering a load and moving it horizontally and in which the hoisting mechanism is an integral part of the machine.

(f) "Derrick" means a power-driven apparatus consisting of a mast or equivalent members held at the top by guys and braces, with or without a boom, for use with a hoisting mechanism and operating ropes.

(g) "Department" means the department of consumer & industry services.

(h) "Director" means the director of the department or his or her authorized representative.

(i) "Elevator" means any power-driven hoisting or lowering mechanism equipped with a car or platform which moves in guides in a substantially vertical direction. This includes both passenger and freight elevators, but does not include dumbwaiters.

(j) "Employ" means engage, permit, or allow to work.

(k) "Employer" means a person, firm, or corporation which employs a minor and includes the state or a political subdivision of the state, an agency or instrumentality of the state, and an agent of an employer.

(l) "Exempt" means employment or services performed that are not covered by these rules.

(m) "Explosives" or "articles containing explosive components" means any chemical compound, mixture, or device, the primary purpose of which is to function by explosion; that is, substantially instantaneous decomposition with the release of heat and gas. Explosives include all of the following:

(i) Ammunition.

(ii) Black powder.

(iii) Blasting caps.

(iv) Blasting agents.

(v) Fulminate of mercury.

(vi) Fireworks.

(vii) Detonating primers.

(viii) Dynamite.

(ix) Lead azide.

(x) Nitroglycerin.

(xi) Picric acid.

(xii) Smokeless powder.

History: 1988 MR 6, Eff. July 14, 1988; 2003 MR 14, Eff. July 30, 2003.

**R 408.6204**

**Source:** 1988 AACS.

**R 408.6205**

**Source:** 1988 AACS.

**R 408.6206**

**Source:** 1988 AACS.

**R 408.6207**

**Source:** 1988 AACS.

**R 408.6208 Prohibited occupations; construction; excavation; roofing; wrecking; demolition; shipbreaking operations; working with explosive materials, hazardous substances, radioactive substances, respiratory equipment; working in a confined space; machine operation and maintenance; operating special equipment; working with power-**

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**driven hoisting apparatus; occupations requiring use of motor vehicle.**

Rule 208. (1) A minor less than 16 years of age shall not be employed in any occupations in a construction operation, as defined in R 408.6203(d), to include repair or the cleanup of a construction site.

(2) A minor shall not be employed in any occupation involving construction work; additions; improvements; excavating; highway, bridge, and street construction; roofing, as defined in R 408.6203(d), or wrecking; demolition; or shipbreaking operations.

(3) A minor shall not be employed in any occupation in or about plants or establishments which manufacture or store explosive materials or articles containing explosive materials, as defined in R 408.6203(m), including ammunition exceeding .60 caliber in size, except where both of the following criteria are met:

(a) None of the work performed in the area involves the mixing, transportation, handling, or use of explosive materials.

(b) The minor's work area is separated from the hazardous area by the distance prescribed for inhabited buildings in table 1, or the minor's work area is separated from the hazardous area by an earthen bank not less than 8 feet in height.

(4) Table 1 reads as follows:

**Distances for Storage of Explosives**

Explosives g  
b,c,d,e

Distance in feet when storage is barricaded

Pounds Over	Pounds not over	From inhabited building	From passenger railways	From public highways	Separation of magazines
2	5	70	30	30	6
5	10	90	35	35	8
10	20	110	45	45	10
20	30	125	50	50	11
30	40	140	55	55	12
40	50	150	60	60	14
50	75	170	70	70	15
75	100	190	75	75	16
100	125	200	80	80	18
125	150	215	85	85	19
150	200	235	95	95	21
200	250	255	105	105	23
250	300	270	110	110	24
300	400	295	120	120	27
400	500	320	130	130	29
500	600	340	135	135	31
600	700	355	145	145	32
700	800	375	150	150	33
800	900	390	155	155	35
900	1,000	400	160	160	36
1,000	1,200	425	170	165	39
1,200	1,400	450	180	170	41
1,400	1,600	470	190	175	43
1,600	1,800	490	195	180	44
1,800	2,000	505	205	185	45
2,000	2,500	545	220	190	49
2,500	3,000	580	235	195	52
3,000	4,000	635	255	210	58

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4,000	5,000	685	275	225	61
5,000	6,000	730	295	235	65
6,000	7,000	770	310	245	68
7,000	8,000	800	320	250	72
8,000	9,000	835	335	255	75
9,000	10,000	865	345	260	78
10,000	12,000	875	370	270	82
12,000	14,000	885	390	275	87
14,000	15,000	900	405	280	90
15,000	18,000	940	420	285	94
18,000	20,000	975	435	290	98
20,000	25,000	1,055	470	315	105
25,000	30,000	1,130	500	340	112
30,000	35,000	1,205	525	360	119
35,000	40,000	1,275	550	380	124
40,000	45,000	1,340	570	400	129
45,000	50,000	1,400	590	420	135
50,000	55,000	1,460	610	440	140
55,000	60,000	1,515	630	455	145
60,000	65,000	1,565	645	470	150
65,000	70,000	1,610	660	485	155
70,000	75,000	1,655	675	500	160
75,000	80,000	1,695	690	510	165
80,000	85,000	1,730	705	520	170
85,000	90,000	1,760	720	530	175
90,000	95,000	1,790	730	540	180
95,000	100,000	1,815	745	545	185
100,000	110,000	1,835	770	550	195
110,000	120,000	1,855	790	555	205
120,000	130,000	1,875	810	560	215
130,000	140,000	1,890	835	565	225
140,000	150,000	1,900	850	570	235
150,000	160,000	1,935	870	580	245
160,000	170,000	1,965	890	590	255
170,000	180,000	1,990	905	600	265
180,000	190,000	2,010	920	605	275
190,000	200,000	2,030	935	610	285
200,000	210,000	2,055	955	620	295
210,000	230,000	2,100	980	635	315
230,000	250,000	2,155	1,010	650	335
250,000	275,000	2,215	1,040	670	360
275,000	300,000	2,275	1,075	690	385

Notes to Table

Note a. All types of blasting caps in strengths through No. 8 shall be rated at 1 1/2 (0.68 kg) of explosives per 1,000 caps.

Note b. "Barricaded" means that a building containing explosives is effectually screened from a magazine, building, railway, or highway, either by a natural barricade or by an artificial barricade of such height that a straight line from the top of any

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sidewall of the building containing explosives to the eave line of any magazine or building, or to a point 12 feet (3.66 m) above the center of a railway or highway, will pass through such intervening or artificial barricade.

Note c. "Artificial barricade" means an artificial mound or revetted wall of earth of a minimum thickness of 3 feet (0.92 m).

Note d. "Natural barricade" means natural features of the ground, such as hills or timber of sufficient density that the surrounding exposures which require protection cannot be seen from the magazine when the trees are bare of leaves.

Note e. When a building containing explosives is not barricaded, the distances shown in Table 1 shall be doubled.

Note f. When 2 or more storage magazines are located on the same property, each magazine shall comply with minimum distances specified from inhabited buildings, railways, and highways, and, in addition, they shall be separated from each other by not less than the distances shown for "Separation of magazines," except that the quantity of explosives contained in cap magazines shall govern in regard to the spacing of the cap magazines from magazines containing other explosives. If any 2 or more magazines are separated from each other by less than the specified "Separation of magazines" distances, then such 2 or more magazines, as a group, shall be considered as 1 magazine, and the total quantity of explosives stored in such group shall be treated as if stored in a single magazine located on the site of any magazine of the group and shall comply with the distances specified from other magazines, inhabited buildings, railways, and highways.

Note g. This table applies only to the manufacture and permanent storage of commercial explosives. It is not applicable to the transportation of explosives or any handling or temporary storage necessary or incident thereto. It is not intended to apply to bombs, projectiles, or other heavily encased explosives.

Note h. 1 pound = 0.454 kg; 1 foot = 0.305 m.

(5) A minor shall not be employed in any occupation involving the use of or exposure to hazardous substances, as defined in R 408.6204(a).

(6) A minor shall not be employed to work in any workroom in which any of the following occurs:

(a) Radium is stored or used in the manufacture of self-luminous compounds.

(b) A self-luminous compound, as defined in R 408.6205(h), is made, processed, packaged, stored, used, or worked on.

(c) Incandescent mantles made from fabric and solutions containing thorium salts are manufactured, processed, or packaged.

(d) Other radioactive substances are present in the air in average concentrations exceeding 10% of the maximum permissible concentrations in the air recommended for occupational exposure as set forth in the 40-hour week column of table 1 of the national council on radiation protection report no. 22, entitled, "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and Water for Occupation Exposure," June 5, 1959, issue, which is adopted herein by reference in these rules and is available for inspection at the Lansing office of the department of labor. This report may be purchased from the National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Suite 400, Bethesda, MD 20814-3095, at the cost of \$20.00. Part 22 of this report may be obtained from the Michigan Department of Consumer & Industry Services, Bureau of Workers' & Unemployment Compensation, 7150 Harris Drive, P.O. Box 30015, Lansing, MI 48909, at a cost of \$3.00.

(7) A minor shall not be employed in any occupation which requires the use of respiratory equipment, as defined in R 408.6205(g).

(8) A minor under 16 years of age shall not be employed in any occupation involving work in a confined space, as defined in R 408.6203(c).

(9) A minor shall not be employed in any occupation involving the operations, setup, repair, adjustment, oiling, or cleaning of any of the following machines:

(a) Power-driven woodworking machinery, as defined in R 408.6205(e).

(b) Power-driven metal-forming, metal-punching, and metal-shearing machines, as defined in R 408.6205(c).

(c) Power-driven bakery machines, as defined in R 408.6205(a).

(d) Power-driven paper products machinery, as defined in R 408.6205(d).

(e) Power-driven saws.

(f) Power-driven meat-processing machines, as defined in R 408.6205(b).

(10) A minor shall not operate, or assist in the operation of, including the starting, stopping, adjusting, feeding, or any other activity involving physical contact with, any of the following machines:

(a) Trencher or earth-moving equipment.

(b) Tractors exceeding 20 power-take-off horsepower, including connecting or disconnecting an implement or any of its parts to or from such a tractor; except that minors 16 to 17 years of age who are provided operating instructions from their employers may operate such tractors.

(11) A minor shall not be employed in work which involves any of the following activities:

(a) The operation of a power-driven hoisting apparatus, including an elevator, power industrial truck, crane, derrick, or hoist, except for the operation of an unattended automatic operation passenger elevator. An employer may apply for a deviation for 16- and 17-year-old minors to operate a motorized hand truck and low-lift platform truck, as defined in R 408.6204(c) and (f), in accordance with R 408.6303.

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- (b) Riding on a manlift or on a freight elevator, except for a freight elevator which is operated by an assigned operator.
  - (c) Assisting in the operation of a crane, derrick, or hoist as traditionally performed by crane hookers, crane chasers, hookers-on, riggers, rigger helpers, and similar occupations.
  - (12) A minor under 16 years of age shall not work under equipment or machinery which has been elevated by a hoist, jack, blocks, or hydraulic power system.
  - (13) A minor shall not be employed in any occupation which requires the operation of a motor vehicle on any public road or highway, except when such operation is occasional and incidental to the minor's primary work activities and if all of the following requirements are complied with:
    - (a) The gross vehicle weight does not exceed 6,000 pounds.
    - (b) The operation is restricted to daylight hours.
    - (c) The minor holds a state license valid for the type of motor vehicle operation involved in the job performed and has completed a state-approved driver education course.
    - (d) The vehicle is equipped with a seat belt or similar device for the driver and for each helper, and the employer has instructed each minor that such belts or other devices must be used.
    - (e) The operation does not involve the transporting of passengers or the towing of vehicles.
  - (14) A minor shall not be employed as an outside helper on any motor vehicle on a public highway.
- History: 1988 MR 6, Eff. July 14, 1988; 2003 MR 14, Eff. July 30, 2003.

**R 408.6209**

**Source:** 1988 AACCS.

**PART 3. DEVIATIONS FROM ESTABLISHED STANDARDS OR FROM  
LEGAL HOURS OF EMPLOYMENT FOR 16- AND 17-YEAR-OLD MINORS**

**R 408.6301**

**Source:** 1988 AACCS.

**R 408.6302 Application for deviation from legal hours of employment.**

- Rule 302. (1) An application for a deviation from the legal hours of employment shall be filed by an employer seeking to employ minors 16 and older beyond the hours prescribed in the act. An application for a deviation from legal hours of employment shall be submitted to the Michigan Department of Consumer & Industry Services, Bureau of Workers' & Unemployment Compensation, 7150 Harris Drive, Lansing, Michigan 48909.
- (2) An application for a deviation shall include all of the following information:
- (a) The name and address of the employer.
  - (b) The name and title of the person filing the application.
  - (c) An indication of the work schedule for hours to be worked before 6 a.m. and beyond 10:30 p.m. when school is in session and before 6 a.m. and beyond 11:30 p.m. when school is not in session.
  - (d) The address where the work is to be performed.
  - (e) A statement of the type of business.
  - (f) Verification that all of the following shall be maintained by the employer:
    - (i) Written permission of the parent or guardian for the minor to work the hours requested.
    - (ii) Records certifying that the combined school and work week does not exceed 48 hours when school is in session and that work hours do not exceed 48 hours when school is not in session.
    - (iii) A written statement from the school the minor attends verifying the number of hours the minor is in school.
- History: 1988 MR 6, Eff. July 14, 1988; 2003 MR 14, Eff. July 30, 2003.

**R 408.6303 Application for deviation from hazardous occupation standards.**

- Rule 303. (1) An application for a deviation from a hazardous occupation shall be filed by an employer seeking to employ minors 16 years and older in an occupation determined to be hazardous. An application for a deviation for a hazardous occupation shall be submitted to the Michigan Department of Consumer & Industry Services, Bureau of Workers' & Unemployment Compensation, 7150 Harris Drive, Lansing, Michigan 48909.
- (2) An application for a deviation shall include all of the following information:
- (a) The name and address of the firm.
  - (b) The name and title of the person filing the application.
  - (c) The name, address, and date of birth of the minor.
  - (d) The school the minor is attending, if the minor is attending school.

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- (e) The address where the work is to be performed.
  - (f) A specification of the standard, or portion thereof, from which the applicant seeks a deviation.
  - (g) A statement of the type of business.
  - (h) A statement detailing how the granting of the deviation will be in the best interests of the minor. The statement may include, but is not limited to, an indication that the minor is not attending school or that the request is based upon a family hardship.
  - (i) A statement indicating any training the minor has received in the proposed type of employment, including a copy of the certification of successful completion of the training program if certification was given.
  - (j) The maximum hours to be worked on a daily and weekly basis.
  - (k) A statement of how the safety, health, and personal well-being of the minor will be protected, including an assurance that all safety and health standards will be abided by and be enforced by the employer.
  - (l) The written approval of the parent or guardian.
- History: 1988 MR 6, Eff. July 14, 1988; 2003 MR 14, Eff. July 30, 2003.

**R 408.6304 Effect of deviation.**

Rule 304. A deviation shall take effect on the date issued.

History: 1988 MR 6, Eff. July 14, 1988; 2003 MR 14, Eff. July 30, 2003.

**R 408.6305**

**Source:** 1988 AACCS.

**R 408.6306**

**Source:** 1988 AACCS.

**R 408.6307**

**Source:** 1988 AACCS.

**R 408.6308**

**Source:** 1988 AACCS.

**DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES**

**DIRECTOR'S OFFICE**

**ELEVATORS**

**CHAPTER 1. GENERAL PROVISIONS**

**R 408.7001 Scope.**

Rule 1. These rules establish administrative and operational procedures for implementation of the elevator safety act of 1967. The rules establish, for protection of the general public, minimum safety requirements for inspection, construction, installation, alteration, maintenance, repair, and operation of elevators.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7002 Definitions.**

Rule 2. (1) As used in these rules:

- (a) "Act" means 1967 PA 227, MCL 408.801 et seq. and known as the elevator safety board act.
- (b) "Belt manlift" means a power-driven endless belt which has steps and handholds and which is used to transport persons in a vertical direction through successive floors or levels of a building or structure.
- (c) "Department" means the department of consumer and industry services.
- (d) "Electrical-powered, 1-man elevator" means an elevator that has a car platform area of not more than 5 square feet, a rated load of not more than 300 pounds, and a rated speed of not more than 100 feet per minute. It is for the exclusive use of certain designated operating and maintenance employees and is installed in any of the following structures:
  - (i) A grain or feed mill.
  - (ii) A chemical or alcohol distillery.
  - (iii) A cement storage tower.
  - (iv) A radio tower.

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- (v) A similar structure that is not accessible to the general public.
- (e) "Examination" means a survey of the design and construction of elevators or elevator equipment by a dealer in elevators or elevator equipment or an approved insurance company.
- (f) "Hand-powered, 1-man elevator" means an elevator which has a car platform area of not more than 5 square feet, which has a rated load of not more than 300 pounds, and which is operated from the car only by pulling on a stationary rope that is located in the hoistway and passing through or adjacent to the car platform. The elevator is for the exclusive use of certain designated operating and maintenance employees and is installed in a grain or feed mill or a similar structure that is not accessible to the general public.
- (g) "Inspection" means the official determination by a general inspector of the condition of all parts of equipment on which the safe operation of an elevator depends.
- (h) "Private residence" means any elevating device installed in or at a private residence or installed in a building as a means of access to a private residence within such building, provided the elevator is installed so that it is not accessible to the general public or to other occupants in the building. The use is restricted to the owner and the owner's immediate family and nonpaying guests. All other elevating device installations shall be classified as commercial.
- (i) "Special elevating device" includes other lifting or lowering apparatus which is guided as provided in section 3 of the act.
- (j) "Temporary inspection" means the inspection of a permanent elevator that is to be used on a temporary basis.
- (2) Terms defined in the act have the same meanings when used in these rules.
- History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7003 Applicability of national standards.**

Rule 3. (1) The standards contained in the American society of mechanical engineers (ASME) safety code for elevators and escalators, ASME A17.1-2000, and the safety code standard for platform lifts and stairway chairlifts, ASME A18.1-1999 and ASME A18.1A-2001 addenda, hereinafter referred to as "code," are adopted in these rules by reference as rules for elevators in this state, except as set forth in subrule (2) of this rule. The codes are adopted by reference in these rules and are available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society of Mechanical Engineers, 22 Law Drive, Box 2900, Fairfield, New Jersey 07007-2900, at a cost as of the time of adoption of these amendatory rules of \$175.00 and \$54.00 respectively. All references to NFPA 70 mean the Michigan Electrical Code. The Michigan Electrical Code is available for inspection or may be purchased from the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, at a cost as of the time of adoption of these amendatory rules of \$53.00 each.

(2) The following sections of the ASME A17.1-2000 code are not adopted in these rules: 2.5.1.5.3, 2.8.2.3.2, 2.11.1.3, 2.11.1.4, 2.11.7.2, 2.14.2.2(f), 2.14.2.6, 2.14.5.8.2, 2.16.5.1.3, 2.22.2, 2.26.1.5, 2.26.4.2, 3.19.5.2, 5.3.1.1.1, 5.3.1.1.2, 5.3.1.1.3, 5.3.1.1.4, 5.3.1.2.1, 5.3.1.14.3, 5.4.10.2, 8.6.5.8, 8.6.10.4, 8.10.1.1.3, 8.11.1.1, 8.11.1.1.1, 8.11.1.1.2. The following sections of the ASME A18.1-2001 code are not adopted in these rules: 2.1.2, 2.1.3, 2.10.2, 3.10.2, 10.1.1, 10.1.2, 10.1.3.3, 10.2.1.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7004 Registration of elevators.**

Rule 4. An elevator shall be registered by the owner or user stating the location, type, capacity, name of manufacturer, and purpose for which it is used. This registration shall be made on a form furnished by the department.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7005 Identification plates and tags.**

Rule 5. (1) The holder of a certificate of operation shall permanently attach to the elevator in an approved area an identification plate showing the rated load and the serial number of each elevator.

(2) One serial number tag shall be furnished and shall be permanently attached to the elevator machine controller.

(3) Identification plates and tags shall be furnished by the department and remain the property of the department.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7006 Accident reports.**

Rule 6. The holder of a certificate of operation shall notify the department within 48 hours of every accident involving personal injury or damage to the elevator. The department may investigate all such accidents.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7007 Responsibility for elevator operation and maintenance.**

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Rule 7. (1) Responsibility for the operation and maintenance of elevators shall be as follows:

(a) The person, firm, or corporation installing, repairing, relocating, or altering an elevator shall be responsible for its operation and maintenance until the certificate of operation is issued, except as provided for in R 408.7012 and shall be responsible for all tests of new, repaired, relocated, and altered equipment until the certificate of operation is issued.

(b) The holder of a certificate of operation or duly appointed agent shall be responsible for the safe operation and proper maintenance of the elevator. The holder of the certificate of operation shall be responsible for all periodic inspections and tests, securing the renewal of the certificate of operation, and the compliance with correction orders.

(c) The licensed contractor holding a temporary certificate of operation shall be responsible for the safe operation and maintenance of the elevator during the period that the temporary certificate is in force.

(2) Safety tests shall be performed by personnel approved by the department.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7008 Commissions of special elevator inspectors.**

Rule 8. (1) A commission to inspect elevators in accordance with section 11 of the act may be issued by the director to a designated holder of a special certificate of competency when the fee has been paid and a written request is received from a company authorized to insure elevators in this state. Such a commission shall not be transferable. The commission shall be retained by the company and a commission credential card shall be issued to the special inspector. The commission and commission credential card shall be returned when services of the inspector terminate.

(2) A commission shall expire annually on December 31. A commission may be renewed by payment of a renewal fee and return of the expired card and commission renewal form.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7009 Examinations by elevator and equipment dealers and insurance companies.**

Rule 9. Nothing in the act shall prevent the examination of elevators by dealers in elevators or elevator equipment or any approved insurance company. Such examination shall not be considered an inspection within the provisions of the act.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7010 New, altered, or relocated elevators; use.**

Rule 10. A new, altered, or relocated elevator shall not be placed into service until it has been inspected by, and tested in the presence of, a general inspector, except as provided in section 15 of the act.

History: 2003 MR 23, Eff. Dec. 31, 2003.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7011 Frequency of inspections.**

Rule 11. All elevators shall be inspected by a general elevator inspector pursuant to the following schedule:

(a) Passenger, freight, mine, inclined, limited-use/limited application, special purpose personnel, and rooftop elevators, material lifts, barrier free lifting devices, escalators, moving walks, belt manlifts, and special elevating devices shall be inspected at least once every 12 months.

(b) Dumbwaiters, stairway chairlifts, 1-person elevators, hand-powered; 1-person elevators, electric-powered; platform lifts; and power sidewalk elevators shall be inspected at least once every 24 months.

(c) Personnel hoists shall be inspected at least once every 30 days.

(d) Elevating devices in private residences shall be inspected only at the discretion of the department or owner.

(e) More frequent inspections may be scheduled at the discretion of the department or owner.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7012 Temporary use of permanent elevators during construction.**

Rule 12. (1) A licensed elevator contractor may request a temporary certificate of operation to permit the use of a passenger or freight elevator before its completion for carrying workers, authorized personnel, or materials. Such elevator shall not be used until it has been approved by a general inspector, the required fee has been paid, and a temporary certificate of operation has been obtained. Such certificate shall be issued for a period not to exceed 90 days. Renewals may be granted at the discretion of the department.

(2) Permanent elevators used temporarily during construction shall be inspected every 30 days.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7013 Discontinuance of operation.**

Rule 13. A general inspector may seal an elevator out of service and void the certificate of operation as provided in section 19



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of the act or if any of the following conditions exist:

- (a) The holder of the certificate of operation fails to pay the required fee.
- (b) The holder of the certificate of operation fails to report an accident as required by these rules.
- (c) The elevator has been constructed, installed, altered, maintained, or repaired by a person, firm, or corporation not approved by the department.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7014 Inspection reports and certificates of operation.**

Rule 14. (1) A general inspector shall forward to the department a report of each inspection stating the condition of the elevator. The inspection report shall be filed with the department within 10 days after the inspection has been completed.

(2) A report indicating an elevator has been sealed out of service shall be forwarded to the department within 48 hours.

(3) The director shall issue a certificate of operation for a capacity not to exceed that named in the inspection report.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7015 Correction orders.**

Rule 15. (1) If upon inspection an elevator is determined to be in an unsafe condition, or if the owner or user has not complied with these rules, then the general inspector shall issue to the holder of the certificate of operation a written correction order stating corrections required and a time limit within which the correction order shall be complied with by the owner or user. The owner or user shall notify the department in writing as soon as full compliance is effected. Notification shall be on forms furnished by the department.

(2) If in the judgment of the general inspector, failure to make such corrections would endanger human life, then compliance with the correction order may be required immediately.

(3) Noncompliance with the correction order may subject the holder of the certificate of operation to the penalty provisions of the act.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7016 Special elevating devices.**

Rule 16. (1) Special elevating devices within the scope of the act shall meet the requirements established by the department and the rules promulgated by the board.

(2) The devices specified in subrule (1) of this rule shall receive special consideration from the department as to the safety features incorporated into them before they may be approved for installation. A permit to install a special elevating device shall be obtained from the department in accordance with section 15 of the act.

(3) Stagelifts are special elevating devices and shall meet the requirements of this rule.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7017 Examination for license or certificate of competency; journey person.**

Rule 17. The board may delegate to the elevator division the authority to administer the written or oral examinations, or both, required for a journey person's license. The minimum passing grade for an applicant for a license or a certificate of competency shall be 70%. An applicant who fails to attain the minimum passing grade is not eligible for reexamination for 60 days after the examination, except as otherwise required by the act or by special permission of the board. A new application form and payment of the prescribed fee is required each time an applicant is examined.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7018 Elevator contractors' and journey persons' licenses; type; classification.**

Rule 18. (1) Elevator contractors' licenses and elevator journey persons' licenses are classified as follows:

(a) Type A, which covers the construction, repair, installation, alteration, and maintenance of any type of elevating device within the scope of the act.

(b) Type B, which covers the repair and maintenance of any type of elevating device within the scope of the act.

(c) Type C, which covers specific installations designed for particular and special purposes for which the applicant proves that he or she is qualified.

(2) More than 1 type of device may be combined or added to 1 Class C elevator contractor's license if the applicant has passed a written examination for each type of device.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7019 Fees.**

Rule 19. (1) Fees shall be paid in accordance with the following schedule:

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Commissions to inspect elevators	
Commission	\$25.00.
Commission renewal	\$25.00.
Examination for certificates of competency	
Certificate of competency examination	\$35.00.
Elevator contractor's licenses	
Elevator contractor's license and renewal	\$75.00.
Elevator contractor's examination	\$45.00.
Elevator journey person license and renewal	\$20.00.
Elevator journey person examination	\$25.00.
Installation permits	
Base permit fee for each of the following devices:	\$200.00.
Passenger elevator	
Freight elevator	
Mine elevator	
Inclined elevator	
Limited-use/limited application elevator	
Private residence elevator	
Special purpose personnel elevator	
Dumbwaiter	
Material lift	
Plus \$25.00 for each hoistway opening	
Escalator	\$200.00.
Moving walk	\$200.00.
Power sidewalk elevator	\$200.00.
Rooftop elevator	\$200.00.
Personnel hoist, initial inspection	\$350.00.
Personnel hoist tower rise	\$150.00.
Belt manlift	175.00.
Special elevating device	\$200.00.
Barrier free lifting device	\$200.00.
Private residence platform lift and private residence stairway chairlift	\$75.00.
Platform lift and stairway chairlift in buildings other than private residence	\$100.00.
Private residence outdoor inclined lift	\$75.00.
Outdoor inclined lift at buildings other than private residence	\$100.00.
A final inspection fee is included in the installation permit fee. If a scheduled final inspection is canceled without due notice to the department, or if the elevator is not complete in the judgment of the general inspector, then an additional fee of \$300.00 shall be charged to the elevator contractor.	
Major alteration permits	
First alteration (including 1 final inspection)	\$110.00.
Each additional alteration	\$45.00.
Maximum alteration fee	\$280.00.
Certificate of operation	
Annual certificate of operation	\$35.00.
Temporary certificate of operation	\$140.00.
Inspection by general inspector	

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Inspection	\$110.00.
Follow-up	\$110.00.

**Special services**

The department may provide, upon written request, special services that are not otherwise covered in the fee structure. The charge for this service shall be at the rate of \$50.00 per hour including travel time.

(2) Fees that are required pursuant to the provisions of the act shall be paid to the department. Checks or money orders shall be made payable to the "State of Michigan."

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7020 Supervising employees.**

Rule 20. (1) If a contractor's license is based on the qualification of a supervising employee, then termination of employment of a supervising employee shall result in the suspension of the license 90 days after termination of employment and the license shall remain suspended until another supervising employee is certified for the employer by the board. The supervising employee and the employer shall each notify the department in writing when the termination of the employment of the former occurs.

(2) A person serving as supervising employee of a contractor may not concurrently serve as supervising employee of another contractor. A supervising employee shall be employed on a full-time basis by the contractor.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7021 Renewal of contractor's licenses and commissions.**

Rule 21. A contractor's license and a commission which has expired may be renewed within 60 days after the date of expiration without examination upon payment of the required renewal fee. A contractor's license and a commission which is not so renewed is considered revoked.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7022 Violations; penalties.**

Rule 22. Any person, firm, or corporation who shall refuse to comply with, or who shall assist in the violation of, any of the provisions of these rules, or who, in any manner hinders, obstructs, resists, prevents, causes unreasonable delay, or in any manner interferes with the inspectors in the performance of any duty herein imposed, or shall refuse to permit such inspectors to perform their duty by refusing them entrance at reasonable hours to buildings or places for the purpose of enforcement of these rules, shall be subject to the fines and penalties as provided by the act.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7023 Appeals to the board.**

Rule 23. (1) Any person, firm, or corporation aggrieved by any decision, ruling, or order of the director or of the department may appeal within 15 days from date of mailing of the decision, ruling, or order to the board, for a hearing before the board in accordance with section 8(d) of the act. An appeal shall specify the reasons and the relief sought and shall be submitted to the director for presentation to the board.

(2) A fee of \$25.00 shall be deposited with the department at the time the appeal is filed. Checks or money orders shall be made payable to the "State of Michigan."

(3) The board shall set a time for hearing of the appeal and give notice by mail to the appellant at least 10 days before the date set for hearing.

(4) A request for an adjournment shall be filed in writing at least 5 days before the date set for hearing. The board or the director may, for good cause, grant an adjournment.

(5) If the appellant fails to appear at the time set for hearing, the board may proceed with the hearing and decide the case in the absence of the appellant. The board may affirm, modify, or set aside the ruling of the department and shall notify the director and the appellant in writing of its decision. The department shall refund the appeal fee if a decision is rendered in favor of the appellant.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7024 Applicability of rules and manual.**

Rule 24. Elevators as defined in section 3 of the act installed before the effective date of this code edition shall comply with the Michigan elevator laws and rules in effect at the time of adoption of this code until the device is altered. All other approved existing features or components of the elevator shall comply with these rules and shall be maintained as described in the American society of mechanical engineers (ASME) guide for inspection of elevators, escalators, and moving walks

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ASME A17.2-2001, which is adopted in these rules by reference and is available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society of Mechanical Engineers, 22 Law Drive, Box 2900, Fairfield, New Jersey 07007-2900, at a cost as of the time of adoption of these amendatory rules of \$110.00 each.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7025 Service and examination of power elevators; frequency; exceptions.**

Rule 25. A power elevator, except a private residence elevator, private residence inclined elevator, private residence platform lift, or private residence stairway chairlift, shall be serviced and examined for defects by a licensed elevator journey person at least once every 90 days, except for the following devices which shall be serviced and examined at least once every 180 days:

- (a) Dumbwaiters.
- (b) One-person elevators, electric and hand-powered.
- (c) Platform lifts and stairway chairlifts in buildings other than private residences.

An accessible written record of all service and examination shall be maintained in the machine room or on-site if a machine room does not exist.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**CHAPTER 2. ALL ELEVATORS**

**R 408.7026 Disconnecting means for new and altered elevators.**

Rule 26. The disconnecting means for all elevators and escalators that have 208 volts alternating current (VAC) nominal, 3-phase, shall be a heavy-duty type means and feature a dual cover interlock or a circuit breaker capable of being locked in the open position.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7027 Elevators operated from car only.**

Rule 27. All existing or new elevators operated from the car only shall be provided with an approved means of opening the landing door, from the landing side, when the car is in the unlocking zone.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7028 Buffers and bumpers.**

Rule 28. Buffers of the spring, oil, or equivalent type shall be installed under cars and counterweights of all elevators. Bumpers or solid stops are prohibited.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7029 Dormant elevators.**

Rule 29. (1) An elevator, escalator, or moving walk which is inactive for 1 year shall be classified as dormant and placed out of service in compliance with section 8.11.1.4(b) of the ASME A17.1 code.

(2) A platform lift or stairway chairlift which is inactive for 1 year shall be classified as dormant and placed out of service as follows:

- (a) The device shall be lowered and any suspension means removed.
- (b) The power feed lines shall be disconnected from the machine disconnect switch and taped in compliance with section 10.1.5 of the ASME A18.1 code.
- (c) All landing entrances shall be secured in a closed position from inside the runway or hoistway.
- (d) Folding type devices shall be secured against movement.

(3) Before a dormant elevating device may be placed in service, it shall be inspected by the department and shall conform to these rules and the applicable section of the standard.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7030 Elevator and escalator monitoring.**

Rule 30. All elevators and escalators may be monitored from a remote location. Monitoring shall consist of passing information from the elevator control to a remote location for the collection of information. A device shall not have the capability to adjust, alter, change or reset any switch, parameter, or system of the elevator control from any location except the corresponding car, hoistway, or machine room. The device shall not be capable of bypassing or resetting any safety or electrical protective device. Information collected shall be made available to the department upon request.

History: 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.7031 Existing elevator and barrier free lifting device, door, and clearance requirements.**

Rule 31. Existing elevator and barrier free lifting devices shall comply with sections 2.11.4 and 2.14.4 of the ASME A17.1 code.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**CHAPTER 3. ASME A17.1 MODIFICATIONS**

**R 408.7032 Non-fire-resistive construction.**

Rule 32. Section 2.1.1.2.2 of the ASME A17.1 code is amended to read as follows:

2.1.1.2.2 The hoistway shall be fully enclosed conforming to section 2.1.1.2.2(a), (b), and (c), or 2.1.1.2.2(a) and (d) of the ASME A17.1 code.

(1) Enclosures and doors shall be unperforated to a height of 2000 mm (79 inches) above each floor or landing and above the treads of adjacent stairways. The enclosure shall be unperforated, adjacent to, and for 150 mm (6 inches) on either side of any moving equipment that is within 100 mm (4 inches) of the enclosure.

(2) Openwork enclosures, where used above the 2000 mm (79 inches) level, shall reject a ball 25 mm (1 inch) in diameter.

(3) Openwork enclosures shall be the following:

(a) At least 2.2 mm (0.087 inch) thick wire, if of steel wire grille.

(b) At least 2.2 mm (0.087 inch) thick, if of expanded metal.

(c) So supported and braced as to deflect not over 15 mm (0.6 inch) when subjected to a force of 450 N (100 lbf) applied horizontally at any point.

(3) Enclosures may be glass, provided they are laminated glass in compliance with the Michigan building code, R 408.30401 et seq., or CAN/CGSB-12.1, which is adopted by reference in these rules. The standard is available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the Canadian General Standards Board, Sales Center, Place Du Portage, Phase III Floor 6B1, 11 Laurie Street, Hull, Quebec K1A1G6, at a Canadian cost as of the time of adoption of these amendatory rules of \$50.40. Markings as specified in the applicable standard shall be on each separate piece of glass and shall remain visible after installation.

Glass used for the protection of a hoistway shall provide protection to a minimum height of 8 feet above floor or landing.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7033 Drains and sump pumps.**

Rule 33. Section 2.2.2.4 of the ASME A17.1 code is amended to read as follows:

2.2.2.4 Drains and sump pumps, where provided, shall comply with the Michigan plumbing code, R 408.40701 et seq. and shall be provided with a positive means to prevent water, gases, and odors from entering the hoistway. Subsoil drains shall not be connected or discharged to elevator pits or sumps.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7034 Enclosure of machine rooms and machinery spaces.**

Rule 34. Section 2.7.1 of the ASME A17.1 code is amended to read as follows:

2.7.1 Machines, control equipment, sheaves, and other machinery shall not be exposed to the weather. Machine room and machinery-space enclosures shall conform to section 2.7.1.1 or 2.7.1.2 of the ASME A17.1 code.

Access to these spaces shall not be through restrooms, lavatories, locker rooms, or associated vestibules. Where enclosed ceilings are required or provided they shall be of a solid type with no access panels. Drop type ceilings shall not be permitted. Machine rooms and machinery spaces shall not be used as a pass through or for access to other areas. Building access panels or doors are prohibited in these areas.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7035 Sprinkler systems.**

Rule 35. Section 2.8.2.3 of the ASME A17.1 code is amended to read as follows:

2.8.2.3 Sprinkler systems conforming to the Michigan building code, R 408.30401 et seq., may be installed in the hoistway, machine room, and machinery spaces. Sprinklers installed in elevator shafts and machine rooms shall meet the following requirements:

(1) In hoistways a side wall spray sprinkler shall be installed at the bottom of each hoistway, not more than 24 inches and not less than 12 inches above the floor of the pit. A guard shall be installed on the sprinkler head to prevent accidental tripping or activation.

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(2) In elevator machine rooms automatic sprinklers of ordinary or intermediate temperature rating shall be provided. Each system shall have a readily accessible shut-off valve, that is electronically supervised, located outside the protected area. Sprinkler systems are also subject to the requirements of sections 2.8.2.3.1 to 2.8.2.3.4 of the ASME A17.1 code.  
History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7036 Reopening device for power-operated car doors or gates.**

Rule 36. Section 2.13.5.1 of the ASME A17.1 code is amended to read as follows:

2.13.5.1 Where required by section 2.13.3.4 or 2.13.4 of the ASME A17.1 code, a power-operated car door shall be provided with a reopening device that will function to stop and reopen a car door and the adjacent landing door sufficiently to permit passenger transfer if the car door or gate is obstructed while closing. The reopening device used shall be effective for substantially the full vertical opening of the door in compliance with section 2.13.4.2 of the ASME A17.1 code.

The door reopening device shall remain in operation at all times when the elevator is operating on normal service. Any devices which are designed to bypass the door opening device when the door is open for a predetermined amount of time (nudging) shall not be installed. This does not include operation under fire and other emergency conditions.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7037 Illumination and outlets required; light fuses and circuit breakers; installation.**

Rule 37. Section 2.14.7.1 of the ASME A17.1 code is amended to read as follows:

2.14.7.1 Cars shall be provided with an electric light or lights conforming to sections 2.14.7.1.1 to 2.14.7.1.4 of the ASME A17.1 code. The fuses or circuit breakers for elevator car lights shall be installed in the machine room.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7038 Overloading of freight elevators.**

Rule 38. Section 2.16.6 of the ASME A17.1 code is amended to read as follows:

2.16.6 Freight elevators shall not be loaded in excess of their rated load as specified on the capacity plate required by section 2.16.3 of the ASME A17.1 code.

Exceptions:

(a) Static loads on elevators loaded and unloaded by industrial trucks as noted on capacity or separate plate shall comply with sections 2.16.2.2.3 and 2.16.3.2.1(b) of the ASME A17.1 code.

(b) Elevators designed and installed in compliance with section 2.16.7 of the ASME A17.1 code to carry 1-piece loads exceeding their rated load.

If the department determines that safe operation requires it, a load-weighing device shall be installed. The load weighing device shall prevent operation of the elevator in the down direction only when the load on the platform is in excess of 125% of the rated load as determined by the requirements of section 2.16.3 of the ASME A17.1 code. Such devices shall prevent operation of the elevator in the up direction when the load on the car is in excess of the rated load.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7039 Two-way communication.**

Rule 39. Section 2.27.1.1.2 of the ASME A17.1 code is amended to read as follows:

2.27.1.1.2 A means of two-way conversation (telephone, intercom, and others) shall be provided between the car and a readily accessible point outside the hoistway that is available to emergency personnel.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7040 Fire alarm initiating devices.**

Rule 40. Section 2.27.3.2.1 of the ASME A17.1 code is amended to read as follows:

2.27.3.2.1 Fire alarm initiating devices shall be installed in compliance with the requirements of the Michigan electrical code, R 408.30801 et seq., in all of the following locations:

(a) Each floor served by the elevator.

(b) The associated elevator machine room.

(c) The elevator hoistway, when required.

The fire alarm initiating devices required by section 2.27 of the ASME A17.1 code shall be installed as a stand-alone system. The initiating devices shall be installed so that only the elevator or group of elevators which are affected by the emergency shall be captured. No electrical connection shall be permitted between the stand-alone system and any other initiating device or fire alarm system. These initiating devices are part of the elevator control system and shall be installed by a licensed elevator journeyman or under the direct supervision of a licensed elevator journeyman.

Exception: A dry contact may be made available in the elevator controller to be connected to the building fire alarm system

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for supervision of the elevator stand-alone system. The dry contact shall be located such that any malfunction of either system will not sacrifice the integrity of the other system.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7041 Machine room entrance; location.**

Rule 41. Section 3.7.1 of the ASME A17.1 code is amended to read as follows:

3.7.1 Hydraulic elevator machine and control rooms may be located overhead, adjacent to, underneath the hoistway, or at a remote location. They shall not be located in the hoistway. The entrance to the machine room shall be not more than 25 feet, walking, from a hoistway door.

If hydraulic machines and electrical control equipment are located in spaces separated from the hoistway enclosure in compliance with section 2.1.1 of the ASME A17.1 code, then such spaces shall be separated from other parts of the building by enclosures conforming to section 2.7.1.2 of the ASME A17.1 code and having an access door conforming to section 2.7.3.4 of the ASME A17.1 code.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7042 Car safeties.**

Rule 42. Section 3.17.1 of the ASME A17.1 code is amended to read as follows:

3.17.1 Car safeties shall be provided for roped-hydraulic elevators and shall be permitted to be provided for direct-acting hydraulic elevators. When provided, car safeties shall comply with section 2.17 and sections 3.17.1.1 to 3.17.1.3 of the ASME A17.1 code.

Car safeties shall be installed if the department determines they are necessary for safe operation.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7043 Cylinder protection.**

Rule 43. Section 3.18.3.8.1 of the ASME A17.1 code is amended to read as follows:

3.18.3.8.1 Cylinders not completely exposed above ground shall be protected from corrosion due to galvanic or electrolytic action, salt water, or other underground conditions. An outer cylinder casing of steel is required on a new hydraulic elevator or where a cylinder is being replaced. The steel casing shall have a wall thickness that is not less than 3/8 of an inch. An expandable-type concrete plug shall be poured in the bottom of a casing or a welded plate closer shall be provided and water removed. Dry nonconductive material, if needed, shall be provided between a cylinder and its casing to secure the position of the cylinder. Other methods may also be used with the required steel casing in compliance with section 3.18.3.8.2 of the ASME A17.1 code.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7044 Pipe supports and guards.**

Rule 44. Section 3.19.2.3 of the ASME A17.1 code is amended to read as follows:

3.19.2.3 Piping shall be supported to eliminate undue stress at joints and fittings, particularly at any section of the line subject to vibration. Exposed portions of supply piping directly below the space between the hoistway and car sill in the elevator pit shall be protected with an approved type of guard. Any accessible hydraulic piping that is located outside the elevator machine room or hoistway shall have marking applied stating "Elevator Hydraulic Line" in letters that are at least 19 mm (.75 inch) high in a contrasting color. The marking shall be visible after installation and applied at intervals not greater than 3000 mm (120 inches).

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7045 Shutoff valves; gauge snaps; underground piping; tags.**

Rule 45. Section 3.19.4.1 of the ASME A17.1 code is amended to read as follows:

3.19.4.1 A shutoff valve shall be provided on a new or modernized hydraulic elevator and shall be installed in the cylinder supply line within the elevator machine room. If the hoistway is remotely located from the machine room, then a shutoff valve shall also be provided in the elevator pit.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7046 Pressure gauge fittings.**

Rule 46. Section 3.19.4.5 of the ASME A17.1 code is amended to read as follows:

3.19.4.5 A new hydraulic machine shall be provided with the necessary permanent pressure gauge snap-on fittings or permanent gauges, with a shut off valve to allow pressure readings at each pump for checking operating pressures. The gauge or fitting shall be located on the jack side of the check valve or immediately adjacent to the hydraulic control valve.

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History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7047 Underground piping.**

Rule 47. Section 3.19.5.1 of the ASME A17.1 code is amended to read as follows:

3.19.5.1 Underground piping in connection with a new hydraulic elevator is prohibited. If a cylinder is replaced on an existing hydraulic elevator, then the corresponding piping, if underground, is prohibited unless approved by the department.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7048 Buffers and buffer supports.**

Rule 48. Section 5.3.1.14.1 of the ASME A17.1 code is amended to read as follows:

5.3.1.14.1 The car and counterweight shall be provided with spring buffers. They shall be so designed and installed that they will not be fully compressed when struck by car with its rated load or by the counterweight traveling at 125% of the rated speed, or at governor tripping speed where a governor-operated safety is used.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7049 Buffers.**

Rule 49. Section 5.4.10.1 of the ASME A17.1 code is amended to read as follows:

5.4.10.1 For rated speeds not exceeding 0.25 m/s (50 ft/min), spring or equivalent type buffers are required. Bumpers or solid stops shall not be permitted.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7050 Enclosures for runways and driving machines.**

Rule 50. Section 5.4.13.8 of the ASME A17.1 code is amended to read as follows:

5.4.13.8 Location of driving-machine, alignment, and guarding of sheaves.

(1) The driving machine may be mounted on the car chassis or placed at a remote location. If remotely located, all intervening sheaves or sprockets shall be placed to ensure that ropes or chains travel in proper alignment. All sheaves or sprockets shall be guarded.

(2) A driving machine and controller shall be located within a locked enclosure. This enclosure shall be supported and braced so as to deflect not over 1 inch when subjected to a force of 100 pounds applied horizontally at any point.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7051 Type of operation.**

Rule 51. Section 5.4.15.1 of the ASME A17.1 code is amended to read as follows:

5.4.15.1 The inclined elevator shall be operated by weatherproof constant pressure key switches at each landing and on the car. Key-operated switches shall be of the spring-return type and shall be operated by a cylinder type lock having not less than 5-pin or 5-disk combination with the key removable only when the switch is in the off position. The key shall be group 4 security in compliance with section 8.1 of the ASME A17.1 code.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7052 Electrical equipment and wiring requirements.**

Rule 52. Section 5.4.15.5.1 of the ASME A17.1 code is amended to read as follows:

5.4.15.5.1 All electrical equipment and wiring shall conform to the requirements of the Michigan electrical code. A fused disconnect switch or a circuit breaker shall be installed within the machine enclosure and connected to the power supply line to each electric motor. A hoisting motor shall have a manually reset type of electrical overload device.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7053 Clearances between balustrades and steps.**

Rule 53. Section 6.1.3.3.5 of the ASME A17.1 code is amended to read as follows:

6.1.3.3.5 The clearance (loaded gap) between the step tread and the adjacent skirt panel shall be not more than 3/16 inch when 110 n (25 lbf) is laterally applied from the step to the adjacent skirt panel. The applied load shall not deviate from 110 n (25 lbf) by more than  $\pm 11$  n (2.5 lbf). The load shall be distributed over an area not less than 1940 mm<sup>2</sup> (3 inches<sup>2</sup>) and not more than 3870 mm<sup>2</sup> (6 inches<sup>2</sup>). The combined clearances of both sides shall be not more than 1/4 of an inch.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7054 Skirt deflector devices.**

Rule 54. Section 6.1.3.3.8 of the ASME A17.1 code is amended to read as follows:



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6.1.3.3.8 Deflector devices shall be permitted. Where provided, deflector devices shall extend from skirt panels parallel to the escalator path of travel. Means to secure such deflector devices may be on the exposed surface of the skirt. All fasteners shall be of steel with machine screw threads. Any exposed fastener heads shall be of the tamper-resistant type and flush to within 1 mm (0.04 inch).

(1) Rigid elements shall be in compliance with the following conditions:

(a) Horizontal protrusions extending above the step shall be 18 mm (0.75 inch) maximum. Corners or changes in profile shall be rounded or beveled. The exposed surfaces of such elements shall be smooth and permanently treated with a low-friction material.

(b) On the incline, the area of any protrusion shall lie entirely offset outward from a line beginning on the vertical portion of the skirt panel measured 25 mm (1 inch) vertically above the step nose line. The lower surface shall be beveled not less than 10 degrees upward and the upper surface shall be beveled not less than 15 degrees downward in compliance with Figure 6.1.3.3.8 of the ASME A17.1 code.

(c) At the upper and lower landing, any protrusion shall lie entirely above a line beginning on the vertical portion of the skirt panel 50 mm (2 inches) above the step nose line. The lower surface shall be beveled not less than 10 degrees upward and the upper surface shall be beveled not less than 15 degrees downward. Any rigid elements at the landings shall smoothly blend into the rigid elements along the incline in accordance with the radius of curvature of the transition zone.

(d) If attached to the skirt, rigid elements shall withstand a force of 900 N (200 lbf) perpendicular to the line of attachment of the element without detachment or permanent deformation. The force shall be applied to an area of 645 mm<sup>2</sup> (1 inch<sup>2</sup>).

(2) Flexible elements shall be in compliance with the following conditions:

(a) The horizontal protrusion extending from the skirt surface above the step shall be 50 mm (2 inches) maximum.

(b) Shall be capable of deflecting to an angle of 10 degrees or greater above the horizontal protrusion.

(c) Noncontinuous flexible elements shall be allowed to deflect to allow a maximum of 9.5 mm (0.375 inch) interference with any point on the step surface.

(d) Continuous flexible elements shall not deflect such that they can contact the steps.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7055 Record of oil usage.**

Rule 55. Section 8.6.5.7 of the ASME A17.1 code is amended to read as follows:

8.6.5.7 For systems where part of the cylinder or piping, or both, are not exposed for visible inspection, a written record shall be kept of the quantity of hydraulic fluid added to the system and emptied from leakage collection containers and pans. The written record shall be kept in the machine room. If the quantity of hydraulic fluid loss cannot be accounted for, then the test specified in section 8.11.3.3.3 of R 408.7060 shall be done.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7056 Firefighters' emergency operation.**

Rule 56. Section 8.6.10.1 of the ASME A17.1 code is amended to read as follows:

8.6.10.1 All elevators provided with firefighters' emergency operation shall be subjected quarterly to phase I recall by use of the key switch, and a minimum of 1-floor operation on phase II. Deficiencies shall be corrected. An accessible written record of test results shall be maintained in the machine room.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7057 Applicability of alteration requirements.**

Rule 57. Section 8.7.1.1 of the ASME A17.1 code is amended to read as follows:

8.7.1.1 (1) If any alteration is performed, regardless of any other requirements of section 8.7 of the ASME A17.1 code, then the installation, at a minimum, shall conform to both of the following requirements:

(a) The Michigan elevator laws and rules at the time of installation.

(b) The Michigan elevator laws and rules for the alteration at the time of any alteration.

(2) A permit shall be obtained and the elevator shall not be placed into service until it has been inspected and tested in the presence of a general inspector, except as provided in section 15 of the act.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7058 Car enclosure alterations.**

Rule 58. Section 8.7.2.14.3 of the ASME A17.1 code is amended to read as follows:

8.7.2.14.3 If any alteration is made to the car enclosure, other than as specified in section 8.7.2.14.2 of the ASME A17.1 code, then the installation shall conform to the following:

(a) **Where an existing metal enclosure is retained and new material other than metal, is installed, the car enclosure**

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**shall conform to section 2.14.2.1.1 of the ASME A17.1 code.**

(b) All materials, other than metal or glass, which are used in passenger car enclosure walls and ceilings, and which are not tested in their end use configuration shall be tested individually pursuant to ASTM E 84, UL 723, or NFPA 255, which are adopted by reference in these rules, and the results shall be in compliance with a class A rating, that has a flame spread of 0 - 25 and smoke development of 0 - 450. The ASTM E 84, UL 723, or NFPA 255 standards are available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society for Testing and Materials, 100 Bar Harbor Drive, 2 Conshohocken, PA 19428-2959 (ASTM E 84); COMM 2000, 1414 Brook Drive, Downers Grove, IL 60515 (UL 723); National Fire Protection Association, 11 Tracey Drive, Avon, MA 02322 (NFPA 255) at a cost as of the time of adoption of these amendatory rules of \$35.00, \$243.00, and \$23.50 respectively.

(c) Napped, tufted, woven, looped, and similar materials shall conform to sections 2.14.2.1.1 and 2.14.2.1.2 or sections 8.7.2.14.3(b), 8.3.7, and 8.3.8 of the ASME A17.1 code. Adhesives shall conform to section 8.7.2.14.3(b) of the ASME A17.1 code.

(d) Floor covering, underlayment, and its adhesive shall have a critical radiant flux of not less than 0.45 w/cm<sup>2</sup> as measured by ASTM E 648 which is adopted by reference in these rules. The standard is available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society for Testing and Materials, 100 Bar Harbor Drive, 2 Conshohocken, PA 19428-2959, at a cost as of the time of adoption of these amendatory rules of \$35.00.

(e) Handrails, operating devices, ventilating devices, signal fixtures, audio and visual communications devices and their housings are not required to conform to section 8.7.2.14.3(a) to (d) of the ASME A17.1 code.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7059 Acceptance inspection and tests.**

Rule 59. Section 8.10.1.1.1 of the ASME A17.1 code is amended to read as follows:

8.10.1.1.1 The acceptance inspection shall be made by an inspector employed by the authority having jurisdiction. All parts of the installation shall be inspected for conformity with the requirements of the Michigan elevator laws and rules and section 8.10 of the ASME A17.1 code. The American society of mechanical A17.2-2001 engineers, guide for inspection of elevators, escalators, and moving walks, ASME, a copy of which is adopted by reference in R 408.7024, is recommended as a guide in making the inspection. Balance load and maximum normal speeds with maximum rated load and no load shall be determined and recorded on forms furnished by the department.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7060 Three-year inspection and test requirements.**

Rule 60. Section 8.11.3.3 is added to the ASME A17.1 code to read as follows:

8.11.3.3.3 (1) Cylinders shall be tested at intervals of not more than 36 months.

(2) Three-year inspection and test requirements.

(a) The relief valve setting shall be in compliance with section 3.19.4.2 of the ASME A17.1 code. The relief valve shall be resealed if the relief valve setting is altered or if the seal is broken.

(b) Test the relief valve setting by first inching the empty car upward to engage the plunger stop ring or to engage other suitable blocking provided and then apply pressure from the pump to check the setting.

Procedures for set test are as follows:

(i) Put rated load in the car and locate it at any convenient level.

(ii) Open the disconnect switch and locate the elevation of the platform with respect to a convenient reference.

(iii) For cylinders that are not completely exposed, after not less than 2 hours, note the position of the platform with respect to the chosen reference. For cylinders that are completely exposed, after not less than 30 minutes, note the position of the platform with respect to the chosen reference. A change in the car position during a cylinder test that cannot be accounted for by visible oil leakage or temperature change of the oil indicates a failure of some type requiring further inspections, tests, or repairs. An accessible written record of all oil levels and all oil added shall be maintained in the machine room.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**CHAPTER 4. ASME A18.1 MODIFICATIONS**

**R 408.7061 Runway enclosure.**

Rule 61. Section 2.1.1.1 of the ASME A18.1 code is amended to read as follows:

2.1.1.1 The runway shall be guarded by a solid enclosure extending from the lowest landing to a height at least equal to the height of the platform enclosure above the uppermost landing, in no case less than 42 inches (1067 mm) above the uppermost

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landing. The enclosure shall withstand, without permanent deformation, a force of 125 lbf (556 n) applied on any 4 inch (102 mm) by 4 inch (102 mm) area. The interior of the runway enclosure shall present a smooth surface.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7062 Runway entrance.**

Rule 62. Section 2.1.1.2 of the ASME A18.1 code is amended to read as follows:

2.1.1.2 The runway entrance shall be guarded at the upper landing by a door of unperforated construction not wider than the platform plus 1 inch (25.4 mm). The door shall be self-closing and guard the entire opening to a height equal to or higher than the height of the platform enclosure. The openings created in the runway by these doors shall provide a minimum vertical clearance of 6 feet 8 inches. The doors shall guard the entire area of the openings except for space necessary for operation. Space necessary for operation shall reject a ball 1/2 inch in diameter.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7063 Platforms.**

Rule 63. Section 2.6.1 of the ASME A18.1 code is amended to read as follows:

2.6.1 Frame, floor, and platform entrance. The frame shall be of metal construction and have a factor of safety of not less than 5 based on the rated load. The floor shall be of metal or wood construction with a nonskid surface. One or more of the following shall be provided on each platform entrance:

- (a) A solid door with an electric contact that is a minimum of 42 inches high. In no case shall the door be less in height than the height of the platform enclosure opening.
- (b) Light rays that are provided at 3 inches and 12 inches above floor level.
- (c) A proximity device that is effective for the full width of the opening and from 1 inch above floor level to the height of the platform enclosure opening.
- (d) Other types of devices approved by the board. The operation of the device shall remove the electric power from the motor and brake.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7064 Passenger restriction sign.**

Rule 64. Section 2.7.4 is added to the ASME A18.1 code to read as follows:

2.7.4 A passenger restriction sign shall be provided and placed on each landing door and on the platform. It shall be securely fastened in a conspicuous place. The sign shall state "physically disabled persons only - no freight" in letters not less than 1/2 inch (12.8 mm) high and shall include the international symbol for physically disabled persons.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7065 Passenger restriction sign.**

Rule 65. Section 3.7.5 of the ASME A18.1 code is amended to read as follows:

3.7.5 A passenger restriction sign shall be provided and placed on each landing door and on the platform. It shall be securely fastened in a conspicuous place. The sign shall state "physically disabled persons only - no freight" in letters not less than 1/2 inch (12.8 mm) high and shall include the international symbol for physically disabled persons.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7066 Rated load and speed.**

Rule 66. Section 4.7.1 of the ASME A18.1 code is amended to read as follows:

4.7.1. The capacity shall not be more than 2 persons. The rated load shall not be less than 250 pounds for a 1-seat lift and not less than 400 pounds for a 2-seat lift. The rated speed shall not exceed 30 feet per minute.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7067 Rated load and speed.**

Rule 67. Section 7.7.1 of the ASME A18.1 code is amended to read as follows:

7.7.1. The capacity shall not be more than 2 persons. The rated load shall not be less than 250 pounds for a 1-seat lift and not less than 400 pounds for a 2-seat lift. The speed as measured along the incline, shall not exceed 30 feet per minute. The device shall be installed and maintained so that the means of egress is in compliance with the provisions of the Michigan building code.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7068 Inspection and test requirements for altered installations.**

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Rule 68. Section 10.5 of the ASME A18.1 code is amended to read as follows:

10.5 (1) If any alteration is performed, regardless of any other requirements of the standard, then the installation, at a minimum, shall conform to the requirements of the Michigan elevator laws and rules and the applicable code requirements.

(2) The alteration shall not begin until a permit is obtained from the department and the elevator shall not be placed into service until it has been inspected and tested in the presence of a general elevator inspector, except as provided in section 15 of the act.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**CHAPTER 5. ASME A90-1 MODIFICATIONS**

**R 408.7069 Applicability of national standard and rules of board.**

Rule 69. (1) The standards contained in the American society of mechanical engineers (ASME) safety standard for belt manlifts, ASME A90.1-1997, A90.1a-1999 and A90.1b-2001 addenda are adopted in these rules by reference and are available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society of Mechanical Engineers, 22 Law Drive, Box 2900, Fairfield, New Jersey 07007-02900, at a cost as of the time of adoption of these amendatory rules of \$48.00.

(2) This rule applies to manlifts that are used only to carry plant personnel in granaries, flour mills, parking garages, and similar buildings or occupancies. Belt manlifts shall not be used by the public and, if located in buildings to which the public has access, shall be located in an enclosure that is protected by self-closing, spring-locked doors. Keys to the doors shall be available to employees. The use of belt manlifts during construction is prohibited.

(3) The hoistway enclosure shall be in compliance with the requirements of the Michigan building code, R 408.30401 et seq., and shall maintain the fire rating of the structure.

(4) The travel of any single belt manlift installed after February 14, 1968 shall not exceed 100 feet.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**CHAPTER 6. ANSI A10.4 MODIFICATIONS**

**R 408.7070 Applicability of national standard.**

Rule 70. The standards contained in the American national standards institute (ANSI) safety requirements for personnel hoists and employee elevators for construction and demolition operations, A10.4-1990, with the exception of sections 24.1.2.1 and 26.4.8.1 are adopted by reference in these rules and are available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American National Standards Institute, 1430 Broadway, New York, New York 10018, at a cost as of the time of adoption of these amendatory rules of \$54.00.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7071 Location.**

Rule 71. Section 5.4.8 of the ANSI A10.4 standard is amended to read as follows:

5.4.8 (1) A personnel hoist shall be installed not less than 12 feet from any other lifting or lowering apparatus except other personnel hoists.

(2) A hoistway shall not be located either partially or wholly over sidewalks or passageways.

(3) If tower cranes are installed such that the boom or trolley may go over or into the 12 foot restricted area, then both of the following shall apply:

(a) Limit switches shall be located on both the booms and trolleys of the tower cranes to activate audio and visual alarms and also prevent the boom or trolley from going over or working within 12 feet of the personnel hoist while the hoist is occupied.

(b) Key override switches shall be installed to allow the boom and trolley to go into the 12 foot restricted area when moving material, or at any time the boom or trolley passes over the restricted area. The personnel hoist shall be unoccupied at this time. The evacuation of the personnel hoist is the responsibility of the crane operator and the general contractor.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7072 Hoistway doors and gates.**

Rule 72. Section 6.2.2 of the ANSI A10.4 standard is amended to read as follows:

6.2.2 (1) Each hoistway door shall be equipped with an approved interlock.

(2) Sliding doors and gates shall be constructed of metal and shall be of a design which will reject a ball 1-1/2 inches in diameter.

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History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7073 Spring buffers.**

Rule 73. Section 14.2.1 of the ANSI A10.4 standard is amended to read as follows:

14.2.1 The stroke of the buffer spring, as marked on its marking plate, shall be greater than or equal to those listed in table 2 of the code. Spring-type car and counterweight buffers shall be used for rated speeds not exceeding 300 feet per minute. For rated speeds of more than 200 feet per minute the buffer strokes shall conform to both of the following:

- (a) 201 to 250 feet per minute—6-inch stroke.
- (b) 251 to 300 feet per minute—9-inch stroke.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7074 Car enclosure tops.**

Rule 74. Section 17.7 of the ANSI A10.4 standard is amended to read as follows:

17.7 Tops of car enclosures shall be so designed and installed to be capable of sustaining a load of 300 pounds (136 kg) on any square area 2 feet (0.6 m) on a side and 100 pounds (45 kg) applied at any point. Simultaneous application of these loads is not required. The personnel hoist shall have overhead protection equivalent to 2-inch plank. The planks shall be secured. The exit cover shall be hinged and locked and open outward.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7075 Use of winding drum machines.**

Rule 75. Section 22.2 of the ANSI A10.4 standard is amended to read as follows:

22.2 Winding drum machines may be used irrespective of car travel if the drums are grooved for hoisting wire rope. Grooves shall be machine finished and shall be of the helical or parallel type. Only 1 layer of rope may be on the drum.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7076 Car speed.**

Rule 76. Section 22.3 of the ANSI A10.4 standard is amended to read as follows:

22.3 The rated speed shall not be more than 300 feet per minute.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7077 Emergency stop switch.**

Rule 77. Section 24.2.4 of the ANSI A10.4 standard is amended to read as follows:

24.2.4 An emergency stop switch shall be provided in the car and located in or adjacent to the car operating panel. When opened, the switch shall cause the electric power to be removed from the hoist driving-machine motor and brake. Emergency stop switches shall have all of the following characteristics:

- (1) Manually opened and closed type.
- (2) Red operating handles or buttons.
- (3) Conspicuously and permanently marked "stop."
- (4) Positively opened mechanically and the opening shall not be solely dependent on springs.
- (5) Capability of being locked out of use when the operator leaves the car.
- (6) Operation of the emergency stop switch shall not require manual resetting of the control panels.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7078 Voltages permitted in hoistway or on car.**

Rule 78. Section 24.3.1 of the ANSI A10.4 standard is amended to read as follows:

24.3.1 The maximum system or circuit potential permitted on any equipment in the hoistway or on the car shall be not more than 600 volts. If the potential exceeds 120 volts, then either a grounding conductor shall be incorporated in the traveling cable or a separate grounding conductor shall be installed. A visual indicator shall be included in the grounding circuit, so arranged as to indicate continuously the continuity of the grounding conductor. The type and size of the grounding conductor and the grounding fastening means shall conform to the requirements of the Michigan electrical code. The grounding circuit shall include a device which will interrupt the electric circuit to the load if a ground fault occurs.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7079 Rated load safety test.**

Rule 79. Section 26.4.8 of the ANSI A10.4 standard is amended to read as follows:

26.4.8 A rated load safety test, as required by section 26.2.1.1 of the ANSI A10.4 standard, shall be performed by a licensed

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elevator contractor in the presence of a general elevator inspector every 90 days.  
History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7080 Operation.**

Rule 80. Section 26.6 of the ANSI A10.4 standard is amended to read as follows:

26.6 Hoists shall be operated in compliance with the manufacturing specifications, rules and recommendations, and with the governing authority. This shall consist of items, functions, and criteria pertaining to the hoist use and shall be a part of an operational maintenance and inspection log. One of the following signal systems shall be provided:

- (a) An approved signal device shall be provided to enable persons on each landing to signal the operator to stop and an emergency bell shall be provided to signal the operator to return to the bottom landing.
- (b) An approved type voice communication system shall be provided between the car and landings and the project manager or job site superintendent's office.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7081 Authorized uses.**

Rule 81. Section 26.6.1 of the ANSI A10.4 standard is amended to read as follows:

26.6.1 (1) The only persons permitted to ride on a personnel hoist are workers and other authorized personnel associated with the work being done.

(2) A personnel hoist may be used for carrying materials if it is designed and installed for the type of load to be used and if no passengers are carried during the time materials are being carried except those necessary to handle the materials.

(3) The load on a personnel hoist shall not exceed the maximum rated load established by the department.

(4) Hoists shall be operated by competent, qualified, and authorized personnel using manual operating devices of the continuous pressure type located inside the hoist car only.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**CHAPTER 7. SEWER LIFT STATION PERSONNEL ELEVATORS**

**R 408.7082 Applicability.**

Rule 82. The rules in this subpart apply to electric powered elevators used in sewage lift stations.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7083 Public access.**

Rule 83. A sewage lift station personnel elevator shall not be accessible to the general public and shall be limited to use by employees only.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7084 Location, counterweights, and speed.**

Rule 84. (1) The elevator may be installed in the entrance well.

(2) When counterweights and buffers are provided, the applicable rules shall apply.

(3) The rated speed of a car shall not exceed 35 feet per minute.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7085 Guarding exposed equipment.**

Rule 85. Exposed gears, sprockets, tape or rope sheaves, drums of selectors, floor controllers, signal machines and the ropes, chains or tapes for driving them shall be guarded to protect against accidental contact.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7086 Supports and foundations.**

Rule 86. (1) Machines, machinery, and sheaves shall be supported and maintained in place so as to prevent any part from becoming loose or displaced.

(2) Supporting beams shall be of steel. Beams are not required under machines, sheaves and machinery, or control equipment which are supported on floors provided that the floors are designed and installed to support the load imposed on the floor.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7087 Distance from car platform to floor level.**

Rule 87. The distance from the top of a car platform at the lowest landing shall be not more than 20 inches above the floor

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level. The means of descent from the car platform shall not constitute a hazard.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7088 Car and counterweight clearances.**

Rule 88. (1) If a car platform is level with the lowest landing, then the car buffer striker plates shall not be in contact with the buffers.

(2) If the car is at its extreme limit of normal travel, then there shall be not less than 6 inches between the top of the car crosshead and the nearest obstruction.

(3) If the counterweights are resting on their buffers, then there shall be not less than 3 inches between the top of the car crosshead and the nearest obstruction.

(4) If the car is resting on its buffers there shall be not less than 3 inches clearance between the top of the counterweights and the nearest obstruction.

(5) The clearances between the car and the hoistway enclosure, hoistway sill, or any obstruction shall be not less than 3/4 inch.

(6) The clearance between the car platform sill and hoistway edge shall be not more than 5 inches.

(7) The underside of a projection into the hatch shall be beveled at an angle of not less than 75 degrees with the horizontal unless protected by a safety device to stop the ascending car.

(8) The top of the lower landing entrance shall be provided with a safety device to stop the ascending car if for any reason an overhanging obstruction on the car comes in contact with a shear hazard.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7089 Landing openings.**

Rule 89. (1) If an upper landing side entrance door is provided, then the entrance shall be not less than 6 1/2 feet in height.

(2) The top of the hoistway shall be provided with an overlapping, self-locking hinged cover designed to lock the closed side entrance door when the lift station is unoccupied.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7090 Locking devices.**

Rule 90. (1) The hinged cover and the upper landing side entrance door, when provided, shall be provided with a mechanical latch and an electrical contact designed to be operated from inside the hoistway.

(2) A locking device shall be provided to prevent the top hinged cover from locking the upper landing side entrance door when the lift station is occupied.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7091 Guide rails.**

Rule 91. (1) A car and counterweight shall be provided with guide rails of steel.

(2) A guide rail shall be securely fastened with through bolts or clips of strength, design, and spacing as follows:

(a) A guide rail and its fastenings shall not deflect more than 1/4 inch under normal operations.

(b) A guide rail and its fastenings shall withstand the application of the safety when stopping the car with a rated load or when stopping the counterweights.

(c) A guide rail shall rest on supports and extend at the top of the hoistway to prevent the guide shoes from running off the guide rail if the car or the counterweight travels beyond the terminal landings.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7092 Frames, enclosures, platforms, capacity, and final limits.**

Rule 92. (1) A car frame and platform shall be of metal. Frame members shall be securely bolted and braced. The factor of safety shall not be less than 4 with a uniformly distributed rate load.

(2) The car shall be enclosed to the extent necessary to afford reasonable protection.

(3) The platform area shall not exceed 5 square feet.

(4) The rated capacity shall be not less than 300 pounds.

(5) The limit of travel for the elevator shall be not more than 50 feet.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7093 Emergency exits.**

Rule 93. A car shall be provided with an emergency exit giving egress from the car to an emergency ladder from any location in the hoistway and shall be provided with electrical contacts to prevent movement of the car while the emergency exit is

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open.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7094 Safeties and governors.**

Rule 94. (1) A car shall be provided with a car safety capable of stopping and sustaining the car with a rated load.

(2) The car safety shall be of the inertia or other type approved by the board, operated as a result of the breakage of the hoisting mechanism or by a speed governor. A governor of the speed-governor type shall operate to set the safety at a speed of not more than 175 feet per minute and on breakage of the suspension means. The safety shall operate without appreciable delay and independently of the governor speed action.

(3) If a speed governor is used, then it shall be located where there is sufficient space for full movement of the governor parts and where the governor cannot be struck by the car or counterweight in case of overtravel.

(4) A safety operated switch shall be provided to open the motor-control circuit and the brake-control circuit before or at the time the safety applies.

(5) A governor rope shall be of iron, steel, Monel Metal, or phosphor bronze not less than 1/4 inch in diameter. Tiller-rope construction shall not be used for a governor rope.

(6) An elevator of the winding-drum type or roller chain drive type shall be provided with a slack-rope device of the manually reset type which will remove the power from the motor and brake if the car is obstructed in its descent and the hoisting chain or rope slackens.

(7) A car safety device which depends upon completion of maintenance of an electric circuit for application of the safety shall not be used. A car safety shall be applied mechanically.

(8) Cast iron shall not be used in construction of any part of a car safety, the breakage of which would result in failure of the safety to function to stop and sustain the car.

(9) A test of a car safety shall be made with a rated load in the car before the elevator is put into service. Governor operation of an instantaneous-type safety shall be tested at rated speed by tripping the governor by hand. A safety operated as the result of the breaking of the hoisting mechanism shall be tested by obtaining the necessary slack rope to cause it to function.

(10) An overspeed governor shall be provided for a traction machine.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7095 Driving machines and sheaves.**

Rule 95. (1) A sprocket, winding drum, traction sheave and overhead and deflecting sheave shall be of cast iron or steel. The diameter of a sheave shall not be less than 30 times the diameter of the wire hoisting rope. The rope grooves shall be machined, except where 8 x 19 steel ropes are used. Where 8 x 19 steel ropes are used, the diameter of drums and sheaves may be reduced to 21 times the diameter of the rope.

(2) The factor of safety, based on the static load, that is, the rated load plus the weight of the car or chains, ropes and counterweights, to be used in the design of a driving machine and sheave, shall be not less than either of the following:

(a) Eight for wrought iron and steel.

(b) Ten for cast iron, cast steel, and other material.

(3) A set screw fastening shall not be used instead of a key or pin if the connection is subject to torque or tension.

(4) A friction-gearing or clutch mechanism shall not be used for connecting the sprockets, drum, or sheaves to the main driving gear.

(5) Worm gearing having cast-iron teeth shall not be used.

(6) A driving machine shall be equipped with an electrically released spring-applied brake.

(7) A single ground or short circuit, a counter-voltage, or a motor field discharge shall not prevent the brake magnet from allowing the brake to set when the operating device is placed in the stop position.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7096 Terminal stopping devices.**

Rule 96. (1) Upper and lower normal terminal stopping devices operated by a car shall be provided and shall be set to stop the car at, or near, the upper and lower terminal landings. Upper and lower final terminal stopping devices operated by the car shall also be provided and shall be set to stop the car before it strikes either the overhead or obstruction at the lower floor level. A final terminal stopping device shall be provided on and operated by the driving machine of the winding drum type.

(2) The final terminal stopping device shall act to prevent movement of the car in both directions of travel. The normal and final terminal stopping devices shall not control the same switches on the controller unless 2 or more separate and independent switches are provided, 2 of which shall be closed to complete the motor and brake circuit in each direction of travel.

History: 2003 MR 23, Eff. Dec. 31, 2003.



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**R 408.7097 Operation and operation devices.**

Rule 97. (1) The operation at top and bottom landings shall be of the constant pressure type.

(2) The car operating device shall be of the constant pressure push button type with the face of the button not to project beyond the face of the button plate. The device shall be of the 2-hand control type.

(3) An emergency stop switch shall be provided on or adjacent to the car operating panel. A stop switch shall be of the manually opened and manually closed type with a red handle or button and conspicuously marked "Stop." Spring failure shall not prevent opening of the switch where springs are used.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7098 Control and operating circuits.**

Rule 98. The design and installation of the control and operating circuits shall conform to all of the following:

(a) A control system which depends on completion or maintenance of an electric circuit shall not be used for any of the following:

(i) Interruption of the power and application of machine brake at the terminals.

(ii) Stopping of the car when the emergency stop switch in the car is opened or when any of the electrical protective devices operate.

(iii) Stopping the machine when the safety applies.

(b) A spring used to actuate a switch, contactor, or relay to break the circuit to stop a car at the terminal shall be of the compression type.

(c) The failure of a single magnetically operated switch or relay or contactor to release or operate in the intended manner, or the occurrence of a single accidental ground, shall not permit the car to run.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7099 Hoisting cables.**

Rule 99. (1) Only iron, low carbon steel, or steel wire cables with fibre cores, having the commercial classification "elevator wire cable," shall be used for suspension of an elevator car and counterweights. The wire material for a cable shall be manufactured by the open-hearth or electric furnace process or their equivalent.

(2) Suspension means shall be not less than 2 iron or steel wire cables having a diameter of not less than 1/4 inch.

(3) The factor of safety of the suspension means shall be not less than 7.

(4) The arc of contact of a wire rope on a traction sheave shall be sufficient to produce adequate traction under all load conditions.

(5) A wire rope anchored to a winding drum shall have not less than 1 full turn of rope on the drum when the car or counterweight has reached its limit of possible overtravel.

(6) A car or counterweight wire rope shall not be lengthened or repaired by splicing.

(7) The winding-drum end of a car and counterweight wire rope shall be secured by a clamp on the inside of the drum.

(8) The car or counterweight end of a wire rope shall be fastened by return loop, by individual tapered babbitted sockets, or by an alternate method approved by the board. A clamp of the U-bolt type shall not be used.

History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7100 Hoisting chains.**

Rule 100. (1) Only roller chain made of high quality alloy, heat treated steel with the following characteristics is acceptable for hoisting chains:

(a) Prestressed.

(b) Shot peened.

(c) In-line blanking.

(d) Deep case hardening of pins and bushings.

(2) Suspension means shall not be less than 2 separate roller chains, each chain having a tensile strength of not less than 3,500 pounds.

(3) The factor of safety of the suspension means shall be not less than 7.

(4) A chain shall have not less than 6 inches of chain available beyond the normal stopping point when the car has reached its extreme limits of travel.

(5) A chain end shall be fastened by standard master links.

**R 408.7101 Wiring and lighting.**

Rule 101. (1) Electric wiring shall be in rigid metal conduit or electrical metallic tubing.

(2) A traveling cable used between the car and hoistway wiring shall be in compliance with the Michigan electrical code.

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- (3) A fused disconnect main line switch externally operated shall be provided adjacent to the controller.
  - (4) Hoistway lighting shall be provided.
- History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7102 Inspection and tests.**

- Rule 102. (1) An existing installation and a new elevator installation, after being placed in service, shall be subjected to maintenance inspections and tests.
- (2) Maintenance inspections and tests of elevator car and counterweight safeties and governors shall be made at intervals of not more than 12 months.
- (3) The owner or owner's authorized agent shall have maintenance inspections and tests made by a person qualified to perform them in the presence of an inspector in the employ of or authorized by the department, except where such an inspector is not available. When the required tests are made, the person or firm conducting the tests shall do both of the following:
- (a) Submit to the department a statement upon a form furnished by it certifying that the tests have been conducted and further certifying to the results thereof.
  - (b) Attach to the governor rope a tag marked to show the date of the test and the name of the person or firm who conducted it.
- (4) The distance between any 100 continuous links of roller chain, measured from centerline of pin, shall not be more than + or – 1% of the rated pitch of the chain being tested. For example, 100 links of standard series single strand #40 roller chain, which has a pitch length of 1/2 inch shall not be more than 50 1/2 inches or less than 49 1/2 inches.
- (5) The inspection of chain links shall be made at not less than 3 points picked at random.
- History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.7103 Reshacking of hoisting ropes of drum-type machines.**

- Rule 103. The hoisting ropes of a power elevator having a drum-type driving machine with 1-to-1 roping shall be reshacked at the car ends at intervals not more than 24 months for a machine located below or at the side of the hoistway.
- History: 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8101 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.  
Editor's note: Former R 408.8101 -- R 408.8107 transferred to R 408.3901 -- R 408.3907.

**R 408.8103 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 75, Eff. May 9, 1973; 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1985 MR 3, Eff. Apr. 10, 1985; 1992 MR 11, Eff. Dec. 2, 1992; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8108 Rescinded.**

History: 1954 ACS 75, Eff. May 9, 1973; 1954 ACS 82, Eff. Feb. 7, 1995; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1985 MR 3, Eff. Apr. 10, 1985; 1992 MR 11, Eff. Dec. 2, 1992; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8111 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8121 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8122 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8123 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8124 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.8131 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8132 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8133 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8134 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1985 MR 5, Eff. June 5, 1985; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8135 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8136 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8137 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8138 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8139 Rescinded.**

History: 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8141 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1990 MR 7, Eff. July 21, 1990; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8145 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8149 Rescinded.**

History: 1954 ACS 77, Eff. Nov. 7, 1973; 1954 ACS 93, Eff. Nov. 16, 1977; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8150 Rescinded.**

History: 1954 ACS 77, Eff. Nov. 7, 1973; 1954 ACS 93, Eff. Nov. 16, 1977; 1979 AC; 1985 MR 5, Eff. June 5, 1985; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8151 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 78, Eff. Mar. 13, 1974; 1954 ACS 87, Eff. Apr. 7, 1976; 1954 ACS 93, Eff. Nov. 16, 1977; 1979 AC; 1979 ACS 10, Eff. Apr. 10, 1982; 1987 MR 11, Eff. Dec. 16, 1987; 1992 MR 12, Eff. Jan. 1, 1993; 2002 MR 13, Eff. July 15, 2002; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8152 Rescinded.**

History: 1954 ACS 77, Eff. Nov. 7, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8153 Rescinded.**

History: 1954 ACS 77, Eff. Nov. 7, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.8161 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8171 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8201 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8202 Rescinded.**

History: 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8203 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8205 Rescinded.**

History: 1954 ACS 93, Eff. Nov. 16, 1977; 1979 AC; 1985 MR 5, Eff. June 5, 1985; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8206 Rescinded.**

History: 1954 ACS 93, Eff. Nov. 16, 1977; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8211 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8212 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8213 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8214 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8215 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8216 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8217 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8218 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8219 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8220 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8221 Rescinded.**

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History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8222 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8223 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8224 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8225 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8226 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8227 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8228 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 93, Eff. Nov. 16, 1977; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8229 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8230 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8231 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8232 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 93, Eff. Nov. 16, 1977; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8233 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8234 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8235 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8236 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8237 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8238 Rescinded.**

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History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8241 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8242 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8243 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8244 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8245 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8246 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8247 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8248 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8249 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8250 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8251 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8252 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8253 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8254 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8255 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8256 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8257 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8258 Rescinded.**

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History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8259 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8260 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8261 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8262 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8263 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8264 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8265 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8266 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 93, Eff. Nov. 16, 1977; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8267 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8268 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8269 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8270 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8271 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8281 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8282 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8283 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8284 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.8285 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8286 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8287 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8288 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8289 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8290 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8291 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8292 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8293 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8294 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8295 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8296 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8301 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8302 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8303 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8304 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8305 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8306 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8307 Rescinded.**



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History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8308 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8309 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8310 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8311 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8312 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8313 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8321 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8322 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8323 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8324 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8325 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8326 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8327 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8328 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8329 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8341 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8361 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8362 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.8363 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8364 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8365 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8401 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8403 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8411 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8415 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8421 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8422 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8423 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8424 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8425 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8426 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8427 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8428 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8429 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8430 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.8431 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8432 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8433 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8434 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8435 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8436 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8437 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8438 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8439 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8440 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8441 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8451 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8452 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8453 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8454 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8455 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8456 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8457 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8458 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.8459 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8460 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8461 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8462 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8463 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8464 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8465 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8466 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8467 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8468 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8469 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8470 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8471 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8472 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8473 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8474 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8475 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8476 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8477 Rescinded.**

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History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8478 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8481 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8483 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8484 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; rescinded 1954 ACS 82, Eff. Feb. 7, 1975; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8511 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; 1985 MR 5, Eff. June 5, 1985; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8512 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8513 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8514 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8515 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8516 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8517 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8518 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8519a Rescinded.**

History: 1985 MR 5, Eff. June 5, 1985; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8520 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8523a Rescinded.**

History: 1985 MR 5, Eff. June 5, 1985; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.8524 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8525 Rescinded.**

History: 1954 ACS 87, Eff. Apr. 7, 1976; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8531 Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1979 ACS 10, Eff. Apr. 10, 1982; 1992 MR 11, Eff. Dec. 2, 1992; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8532 Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1992 MR 11, Eff. Dec. 2, 1992; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8533 Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1979 ACS 10, Eff. Apr. 10, 1982; 1992 MR 11, Eff. Dec. 2, 1992; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8534 Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8535 Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1979 ACS 10, Eff. Apr. 10, 1982; 1992 MR 11, Eff. Dec. 2, 1992; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8536 Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1979 ACS 10, Eff. Apr. 10, 1982; 1992 MR 11, Eff. Dec. 2, 1992; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R408.8536a Rescinded.**

History: 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8537a Rescinded.**

History: 1979 ACS 10, Eff. Apr. 10, 1982; 1992 MR 11, Eff. Dec. 2, 1992; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8538 Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8539 Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8540 Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1979 ACS 10, Eff. Apr. 10, 1982; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8540a Rescinded.**

History: 1954 ACS 78, Eff. Mar. 13, 1974; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8540b Rescinded.**

History: 1979 ACS 10, Eff. Apr. 10, 1982; 1992 MR 11, Eff. Dec. 2, 1992; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.8540c Rescinded.**

History: 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8541 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1954 ACS 68, Eff. June 28, 1971; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8542 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8543 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8544 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8545 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8546 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8547 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8548 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8549 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8550 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8551 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8552 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8553 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8554 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8555 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8556 Rescinded.**

History: 1954 ACS 68, Eff. June 28, 1971; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8561 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec.

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**R 408.8562 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8563 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8571 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8572 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8573 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8574 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8575 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8576 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8577 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8578 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8579 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8580 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8581 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8582 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8583 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8585 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8587 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8588 Rescinded.**



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History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8589 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8590 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8591 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8592 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8595 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8596 Rescinded.**

History: 1954 ACS 74, Eff. Jan. 18, 1973; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8601 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8611 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8612 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 1979 ACS 7, Eff. June 27, 1981.

**R 408.8613 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8614 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8615 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8616 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 1979 ACS 7, Eff. June 27, 1981.

**R 408.8617 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8618 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8619 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

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**R 408.8620 Rescinded.**

History: 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8621 Rescinded.**

History: 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8631 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8632a Rescinded.**

History: 1985 MR 3, Eff. Apr. 10, 1985; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8634 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8636a Rescinded.**

History: 1954 ACS 67, Eff. Apr. 28, 1971; 1979 AC; 1992 MR 11, Eff. Dec. 2, 1992; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8638 Rescinded.**

History: 1954 ACS 67, Eff. Apr. 28, 1971; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8639 Rescinded.**

History: 1954 ACS 67, Eff. Apr. 28, 1971; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8639b Rescinded.**

History: 1954 ACS 82, Eff. Feb. 7, 1975; 1979 AC; 1985 MR 3, Eff. Apr. 10, 1985; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8641 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8642 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8643 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8644 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8648 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8661 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1985 MR 3, Eff. Apr. 10, 1985;

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1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8662 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8664 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8671 Rescinded.**

History: 1954 ACS 53, Eff. Feb. 14, 1968; 1979 AC; 1979 ACS 7, Eff. June 27, 1981; 1985 MR 3, Eff. Apr. 10, 1985; 1992 MR 11, Eff. Dec. 2, 1992; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8681 Rescinded.**

History: 1954 ACS 87, Eff. Apr. 7, 1976; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8682 Rescinded.**

History: 1954 ACS 87, Eff. Apr. 7, 1976; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8683 Rescinded.**

History: 1954 ACS 87, Eff. Apr. 7, 1976; 1979 AC; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8690 Rescinded.**

History: 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8691 Rescinded.**

History: 1979 ACS 7, Eff. June 27, 1981; 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8691a Rescinded.**

History: 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8691b Rescinded.**

History: 1996 MR 12, Eff. Dec. 24, 1996; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8692 Rescinded.**

History: 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8693 Rescinded.**

History: 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8694 Rescinded.**

History: 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**R 408.8695 Rescinded.**

History: 1979 ACS 7, Eff. June 27, 1981; rescinded 2003 MR 23, Eff. Dec. 31, 2003.

**PAYMENT OF WAGES AND FRINGE BENEFITS**

**R 408.9001**

Source: 1998-2000 AACS.

**R 408.9002 Definitions; A to D.**

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Rule 2. (1) As used in these rules:

- (a) "Act" means 1978 PA 390, MCL 408.471 et seq., and known as the payment of wages and fringe benefits act.
- (b) "Complainant" means any person who submits a signed complaint alleging a violation of the act and who provides the information required by the department.
- (c) "Department" means the department of consumer and industry services.
- (d) "Voluntary payment in full" means either of the following:
  - (i) Payment of wages and fringe benefits claimed before the issuance of a departmental determination.
  - (ii) Payment of the full amount of wages and fringe benefits due, plus the 10% per annum penalty and any exemplary damages assessed within 14 days of the date of the determination. If the last day of the 14-day period is a Saturday, Sunday, or a state holiday, then that day is excluded and the period extends until the end of the next day that is not a Saturday, Sunday, or state holiday.
- (2) As used in the act:
  - (a) "An employee employed in a bona fide administrative capacity" means an employee who is compensated on a salary basis at not less than \$250.00 per week and whose primary duty is nonmanual work directly related to management policies of the general business operations or performing functions in the administration of an educational institution.
  - (b) "An employee employed in a bona fide executive capacity" means an employee to whom all of the following provisions apply:
    - (i) Compensation is on a salary basis at not less than \$250.00 per week.
    - (ii) The employee's primary duty is management.
    - (iii) The employee supervises 2 or more employees.
  - (c) "An employee employed in a bona fide professional capacity" means an employee who is compensated on a salary basis at not less than \$250.00 per week and whose primary duty is any of the following:
    - (i) Work in a field of science or learning that requires knowledge acquired by a prolonged course of specialized instruction.
    - (ii) Work in a recognized field of artistic endeavor that depends upon the talent of the employee.
    - (iii) Work in an educational institution as a teacher, tutor, instructor, or lecturer.
  - (d) "Bonus" means a premium or extra or irregular remuneration in addition to wages that is awarded to an employee under a written contract or written policy.
  - (e) "Director" means the director of the department or his or her authorized representative.
  - (f) "Informally resolve" means any of the following:
    - (i) Voluntary payment in full as defined in R 408.9002.
    - (ii) A settlement agreement as described in R 408.9026.
    - (iii) Withdrawal of the complaint as described in R 408.9027.

History: 1979 ACS 9, Eff. Jan. 21, 1982; 1998 MR 1, Eff. Feb. 12, 1998; 2003 MR 14, Eff. July 30, 2003.

**R 408.9003**

**Source:** 1998-2000 AACS.

**R 408.9004**

**Source:** 1998-2000 AACS.

**R 408.9005**

**Source:** 1998-2000 AACS.

**R 408.9006**

**Source:** 1998-2000 AACS.

**R 408.9007**

**Source:** 1998-2000 AACS.

**R 408.9008**

**Source:** 1998-2000 AACS.

**R 408.9009**

**Source:** 1998-2000 AACS.

**R 408.9010**

**Source:** 1998-2000 AACS.

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**R 408.9011**

**Source:** 1998-2000 AACS.

**R 408.9012 Statement of hours worked and pay earned.**

Rule 12. An employer shall furnish each employee with a statement of the information required by section 9(2) of the act in a retainable form.

History: 1979 ACS 9, Eff. Jan. 21, 1982; 1998 MR 1, Eff. Feb. 12, 1998; 2003 MR 14, Eff. July 30, 2003.

**R 408.9013**

**Source:** 1998-2000 AACS.

**R 408.9014**

**Source:** 1998-2000 AACS.

**R 408.9015**

**Source:** 1998-2000 AACS.

**R 408.9016**

**Source:** 1998-2000 AACS.

**R 408.9017**

**Source:** 1998-2000 AACS.

**R 408.9018**

**Source:** 1982 AACS.

**R 408.9019 Acceptance of complaints by the department.**

Rule 19. The department shall accept a complaint form or other statement which provides all of the following information:

- (a) Name and address of complainant.
- (b) Name and address of employer who is alleged to have committed the violation.
- (c) The date or dates the violation is alleged to have occurred.
- (d) An estimate of the amount of wages or fringe benefits claimed.

History: 1979 ACS 9, Eff. Jan. 21, 1982; 1998 MR 1, Eff. Feb. 12, 1998; 2003 MR 14, Eff. July 30, 2003.

**R 408.9020**

**Source:** 1998-2000 AACS.

**R 408.9021**

**Source:** 1998-2000 AACS.

**R 408.9022**

**Source:** 1998-2000 AACS.

**R 408.9023**

**Source:** 1998-2000 AACS.

**R 408.9024**

**Source:** 1998-2000 AACS.

**R 408.9025**

**Source:** 1998-2000 AACS.

**R 408.9026**

**Source:** 1998-2000 AACS.

**R 408.9027**

**Source:** 1998-2000 AACS.

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**R 408.9028**  
Source: 1998-2000 AACS.

**R 408.9029**  
Source: 1998-2000 AACS.

**R 408.9030**  
Source: 1998-2000 AACS.

**R 408.9031**  
Source: 1998-2000 AACS.

**R 408.9032**  
Source: 1998-2000 AACS.

**R 408.9033**  
Source: 1998-2000 AACS.

**R 408.9034**  
Source: 1997 AACS.

**GENERAL INDUSTRY SAFETY STANDARDS**

**PART 1. GENERAL PROVISIONS**

**R 408.10003**  
Source: 1993 AACS.

**R 408.10015**  
Source: 1988 AACS.

**R 408.10016**  
Source: 1983 AACS.

**R 408.10018**  
Source: 1981 AACS.

**R 408.10032**  
Source: 1997 AACS.

**R 408.10033**  
Source: 1993 AACS.

**R 408.10036**  
Source: 1983 AACS.

**R 408.10037**  
Source: 1993 AACS.

**R 408.10098**  
Source: 1993 AACS.

**PART 1A. ABRASIVE WHEELS**

**R 408.10102**  
Source: 1990 AACS.

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**R 408.10103**  
Source: 1990 AACS.

**R 408.10105**  
Source: 1990 AACS.

**R 408.10115**  
Source: 1990 AACS.

**GUARDING PROVISIONS**

**R 408.10121**  
Source: 1990 AACS.

**R 408.10124**  
Source: 1990 AACS.

**SPEED PROVISIONS**

**R 408.10171**  
Source: 1997 AACS.

**R 408.10172**  
Source: 1997 AACS.

**R 408.10173**  
Source: 1990 AACS.

**R 408.10174**  
Source: 1990 AACS.

**R 408.10175**  
Source: 1990 AACS.

**SPECIAL SPEEDS**

**R 408.10177**  
Source: 1990 AACS.

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**R 408.10181**  
Source: 1990 AACS.

**R 408.10186**  
Source: 1990 AACS.

**R 408.10187**  
Source: 1990 AACS.

**R 408.10198**  
Source: 1990 AACS.

**R 408.10199**  
Source: 1990 AACS.

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**R 408.10201**  
Source: 1989 AACS.

**R 408.10206**  
Source: 1989 AACS.

**R 408.10208**  
Source: 1989 AACS.

**R 408.10217**  
Source: 1989 AACS.

**R 408.10219**  
Source: 1989 AACS.

**R 408.10223**  
Source: 1989 AACS.

**R 408.10228**  
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**R 408.10230**  
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**R 408.10231**  
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**R 408.10233**  
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**R 408.10235**  
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**R 408.10236**  
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**R 408.10237**  
Source: 1989 AACS.

**R 408.10240**  
Source: 1989 AACS.

**PART 3. FIXED LADDERS**

**R 408.10305**  
Source: 1994 AACS.

**R 408.10306**  
Source: 1994 AACS.

**R 408.10307**  
Source: 1994 AACS.

**R 408.10308**  
Source: 1994 AACS.

**R 408.10310**  
Source: 1994 AACS.



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**R 408.10311**  
Source: 1994 AACS.

**R 408.10323**  
Source: 1994 AACS.

**R 408.10324**  
Source: 1994 AACS.

**R 408.10333**  
Source: 1994 AACS.

**R 408.10342**  
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**R 408.10345**  
Source: 1994 AACS.

**R 408.10351**  
Source: 1998-2000 AACS.

**R 408.10354**  
Source: 1994 AACS.

**R 408.10355**  
Source: 1994 AACS.

**R 408.10365**  
Source: 1982 AACS.

**R 408.10371**  
Source: 1994 AACS.

**R 408.10372**  
Source: 1994 AACS.

**PART 4. PORTABLE LADDERS**

**R 408.10403**  
Source: 1981 AACS.

**R 408.10407**  
Source: 1982 AACS.

**R 408.10426**  
Source: 1997 AACS.

**R 408.10427**  
Source: 1981 AACS.

**R 408.10428**  
Source: 1981 AACS.

**R 408.10431**  
Source: 1982 AACS.

**R 408.10441**  
Source: 1981 AACS.

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**R 408.10446**  
Source: 1982 AACS.

**R 408.10447**  
Source: 1981 AACS.

**R 408.10451**  
Source: 1981 AACS.

**PART 5. SCAFFOLDING**

**R 408.10502**  
Source: 1992 AACS.

**R 408.10503**  
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**R 408.10506**  
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**R 408.10507**  
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**R 408.10508**  
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**R 408.10511**  
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**R 408.10512**  
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**R 408.10513**  
Source: 1983 AACS.

**R 408.10521**  
Source: 1981 AACS.

**R 408.10524**  
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**R 408.10525**  
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**R 408.10527**  
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**R 408.10529**  
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**R 408.10532**  
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**R 408.10535**  
Source: 1983 AACS.

**R 408.10542**  
Source: 1981 AACS.

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**POWERED PLATFORMS**

**R 408.10561**  
Source: 1992 AACS.

**R 408.10562**  
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**R 408.10563**  
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**R 408.10564**  
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**R 408.10579**  
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**R 408.10580**  
Source: 1992 AACS.

**R 408.10581**  
Source: 1992 AACS.

**WIRE, FIBER, AND SYNTHETIC ROPE**

**R 408.10582**  
Source: 1992 AACS.

**R 408.10583**  
Source: 1992 AACS.

**R 408.10584**  
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**R 408.10589**  
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**R 408.10590**  
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**R 408.10591**  
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**R 408.10592**  
Source: 1992 AACS.

**PART 6. FIRE EXITS**

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**R 408.10601**  
Source: 1990 AACS.

**R 408.10603**  
Source: 1990 AACS.

**R 408.10604**  
Source: 1990 AACS.

**R 408.10605**  
Source: 1990 AACS.

**R 408.10608**

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**Source:** 1990 AACS.

**R 408.10611**

**Source:** 1990 AACS.

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**R 408.10621**

**Source:** 1990 AACS.

**R 408.10623**

**Source:** 1993 AACS.

**R 408.10624**

**Source:** 1993 AACS.

**MEANS OF EGRESS**

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**Source:** 1990 AACS.

**R 408.10636**

**Source:** 1990 AACS.

**R 408.10639**

**Source:** 1990 AACS.

**R 408.10644**

**Source:** 1990 AACS.

**R 408.10645**

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**Source:** 1990 AACS.

**R 408.10664**

**Source:** 1990 AACS.

**R 408.10679**

**Source:** 1998-2000 AACS.

**R 408.10695**

**Source:** 1990 AACS.

**PART 7. GUARDS FOR POWER TRANSMISSION**

**R 408.10703**

**Source:** 1982 AACS.

**R 408.10711**

**Source:** 1982 AACS.

**R 408.10712**

**Source:** 1982 AACS.

**R 408.10713**

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**R 408.10714**  
Source: 1997 AACS.

**R 408.10715**  
Source: 1982 AACS.

**R 408.10716**  
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**R 408.10721**  
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**R 408.10741**  
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**R 408.10753**  
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**R 408.10757**  
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**R 408.10763**  
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**PART 8. PORTABLE FIRE EXTINGUISHERS**

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**R 408.10801**  
Source: 1984 AACS.

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**R 408.10813**  
Source: 1984 AACS.

**R 408.10814**  
Source: 1980 AACS.

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**R 408.10822**  
Source: 1984 AACS.

**R 408.10823**  
Source: 1980 AACS.

**R 408.10833**  
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**INSTALLATION, INSPECTION, TESTING, AND MAINTENANCE**

**R 408.10835**  
Source: 1984 AACS.

**R 408.10836**  
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**R 408.10839**  
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**R 408.10901**  
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**R 408.10903**  
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**R 408.10920**  
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**AUTOMATIC SPRINKLER SYSTEMS**

**R 408.10921**  
Source: 1984 AACS.

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**R 408.10928**  
**Source:** 1984 AACS.

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**R 408.10936**  
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**Source:** 1984 AACS.

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**R 408.10971**  
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Source: 1988 AACS.

**R 408.11211**  
Source: 1983 AACS.

**R 408.11212**  
Source: 1988 AACS.

**R 408.11213**  
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**R 408.11222**  
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**R 408.11232**  
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**Source:** 1981 AACS.

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**PART 13. DERRICKS**

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**R 408.12003**  
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**R 408.12005**  
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**R 408.12016**  
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**R 408.12171**  
Source: 1998-2000 AACS.

**R 408.12172**  
Source: 1998-2000 AACS.

**R 408.12173**  
Source: 1998-2000 AACS.

**R 408.12176.**  
Source: 1998-2000 AACS.

**R 408.12177**  
Source: 1983 AACS.

**R 408.12179**  
Source: 1983 AACS.

**R 408.12183**  
Source: 1983 AACS.

**R 408.12184**  
Source: 1983 AACS.

**R 408.12190**  
Source: 1983 AACS.

**PART 23. HYDRAULIC POWER PRESSES**



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**R 408.12336**  
Source: 1997 AACS.

**PART 24. MECHANICAL POWER PRESSES**

**R 408.12401**  
Source: 1990 AACS.

**R 408.12403**  
Source: 1990 AACS.

**R 408.12404**  
Source: 1990 AACS.

**R 408.12407**  
Source: 1990 AACS.

**R 408.12411**  
Source: 1993 AACS.

**R 408.12412**  
Source: 1993 AACS.

**R 408.12413**  
Source: 1990 AACS.

**R 408.12428**  
Source: 1990 AACS.

**R 408.12442**  
Source: 1990 AACS.

**R 408.12443**  
Source: 1990 AACS.

**SAFEGUARDING THE POINT OF OPERATION**

**R 408.12461**  
Source: 1990 AACS.

**R 408.12463**  
Source: 1993 AACS.

**DIE DESIGN, CONSTRUCTION, SETTING, AND FEEDING**

**R 408.12471**  
Source: 1990 AACS.

**R 408.12472**  
Source: 1990 AACS.

**R 408.12473**  
Source: 1990 AACS.

**R 408.12474**  
Source: 1990 AACS.

**R 408.12477**

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**Source:** 1990 AACS.

**PART 25. MANLIFTS**

**R 408.12501**

**Source:** 1997 AACS.

**PART 26. METALWORKING MACHINERY**

**R 408.12605**

**Source:** 1991 AACS.

**R 408.12607**

**Source:** 1991 AACS.

**R 408.12613**

**Source:** 1997 AACS.

**R 408.12614**

**Source:** 1991 AACS.

**R 408.12615**

**Source:** 1997 AACS.

**R 408.12617**

**Source:** 1997 AACS.

**R 408.12620**

**Source:** 1991 AACS.

**R 408.12633**

**Source:** 1991 AACS.

**R 408.12635**

**Source:** 1991 AACS.

**R 408.12636**

**Source:** 1991 AACS.

**R 408.12639**

**Source:** 1991 AACS.

**R 408.12640**

**Source:** 1991 AACS.

**R 408.12641**

**Source:** 1991 AACS.

**R 408.12642**

**Source:** 1991 AACS.

**R 408.12646**

**Source:** 1991 AACS.

**R 408.12650**

**Source:** 1991 AACS.

**PART 27. WOODWORKING MACHINERY**

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**R 408.12715**  
Source: 1997 AACS.

**R 408.12716**  
Source: 1997 AACS.

**R 408.12718**  
Source: 1981 AACS.

**R 408.12727**  
Source: 1981 AACS.

**R 408.12728**  
Source: 1983 AACS.

**R 408.12730**  
Source: 1983 AACS.

**R 408.12751**  
Source: 1981 AACS.

**R 408.12793**  
Source: 1981 AACS.

**R 408.12798**  
Source: 1983 AACS.

**PART 31. PERSONAL PROTECTIVE EQUIPMENT**

**R 408.13101**  
Source: 1997 AACS.

**R 408.13102**  
Source: 1997 AACS.

**R 408.13103**  
Source: 1997 AACS.

**R 408.13104**  
Source: 1997 AACS.

**R 408.13105**  
Source: 1997 AACS.

**R 408.13106**  
Source: 1997 AACS.

**R 408.13107**  
Source: 1997 AACS.

**R 408.13108**  
Source: 1997 AACS.

**R 408.13109**  
Source: 1997 AACS.

**R 408.13110**  
Source: 1997 AACS.

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**R 408.13111**  
Source: 1997 AACS.

**R 408.13112**  
Source: 1997 AACS.

**R 408.13113**  
Source: 1997 AACS.

**R 408.13114**  
Source: 1997 AACS.

**R 408.13115**  
Source: 1997 AACS.

**R 408.13116**  
Source: 1997 AACS.

**R 408.13117**  
Source: 1997 AACS.

**R 408.13118**  
Source: 1997 AACS.

**R 408.13119**  
Source: 1997 AACS.

**R 408.13120**  
Source: 1997 AACS.

**R 408.13121**  
Source: 1997 AACS.

**R 408.13122**  
Source: 1997 AACS.

**R 408.13123**  
Source: 1997 AACS.

**R 408.13124**  
Source: 1997 AACS.

**R 408.13125**  
Source: 1997 AACS.

**R 408.13126**  
Source: 1997 AACS.

**R 408.13127**  
Source: 1997 AACS.

**R 408.13128**  
Source: 1997 AACS.

**R 408.13129**  
Source: 1997 AACS.

**R 408.13130**  
Source: 1997 AACS.

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**R 408.13131**  
Source: 1997 AACS.

**R 408.13132**  
Source: 1997 AACS.

**R 408.13133**  
Source: 1997 AACS.

**R 408.13134**  
Source: 1997 AACS.

**R 408.13135**  
Source: 1997 AACS.

**PART 32. HEAD PROTECTION EQUIPMENT**

**R 408.13201**  
Source: 1997 AACS.

**R 408.13203**  
Source: 1997 AACS.

**R 408.13205**  
Source: 1997 AACS.

**R 408.13211**  
Source: 1997 AACS.

**R 408.13221**  
Source: 1997 AACS.

**R 408.13222**  
Source: 1997 AACS.

**R 408.13231**  
Source: 1997 AACS.

**R 408.13241**  
Source: 1997 AACS.

**PART 33. PERSONAL PROTECTIVE EQUIPMENT**

**R 408.13301**  
Source: 1983 AACS.

**R 408.13302**  
Source: 1983 AACS.

**R 408.13303**  
Source: 1983 AACS.

**R 408.13304**  
Source: 1983 AACS.

**R 408.13305**  
Source: 1983 AACS.

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**R 408.13306**  
Source: 1983 AACS.

**R 408.13308**  
Source: 1995 AACS.

**R 408.13309**  
Source: 1995 AACS.

**R 408.13310**  
Source: 1997 AACS.

**FACE AND EYE PROTECTION**

**R 408.13311**  
Source: 1997 AACS.

**R 408.13312**  
Source: 1997 AACS.

**R 408.13313**  
Source: 1983 AACS.

**R 408.13320**  
Source: 1983 AACS.

**R 408.13321**  
Source: 1983 AACS.

**R 408.13322**  
Source: 1983 AACS.

**R 408.13323**  
Source: 1983 AACS.

**R 408.13324**  
Source: 1995 AACS.

**R 408.13325**  
Source: 1983 AACS.

**R 408.13327**  
Source: 1983 AACS.

**R 408.13329**  
Source: 1983 AACS.

**R 408.13330**  
Source: 1983 AACS.

**R 408.13332**  
Source: 1983 AACS.

**R 408.13340**  
Source: 1983 AACS.

**R 408.13342**  
Source: 1983 AACS.

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**R 408.13343**  
Source: 1983 AACS.

**R 408.13344**  
Source: 1983 AACS.

**R 408.13345**  
Source: 1983 AACS.

**R 408.13346**  
Source: 1983 AACS.

**R 408.13347**  
Source: 1983 AACS.

**EYE PROTECTORS**

**R 408.13350**  
Source: 1997 AACS.

**R 408.13352**  
Source: 1983 AACS.

**R 408.13353**  
Source: 1983 AACS.

**R 408.13355**  
Source: 1983 AACS.

**R 408.13356**  
Source: 1983 AACS.

**R 408.13357**  
Source: 1983 AACS.

**R 408.13359**  
Source: 1983 AACS.

**R 408.13360**  
Source: 1983 AACS.

**R 408.13362**  
Source: 1983 AACS.

**R 408.13363**  
Source: 1983 AACS.

**R 408.13364**  
Source: 1983 AACS.

**R 408.13366**  
Source: 1983 AACS.

**R 408.13367**  
Source: 1983 AACS.

**R 408.13369**  
Source: 1983 AACS.

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**HEAD PROTECTION EQUIPMENT**

**R 408.13370**  
Source: 1997 AACS.

**R 408.13372**  
Source: 1997 AACS.

**R 408.13375**  
Source: 1995 AACS.

**R 408.13376**  
Source: 1983 AACS.

**R 408.13378**  
Source: 1983 AACS.

**FOOT PROTECTION**

**R 408.13383**  
Source: 1997 AACS.

**R 408.13384**  
Source: 1983 AACS.

**R 408.13385**  
Source: 1997 AACS.

**R 408.13386**  
Source: 1983 AACS.

**ELECTRICAL PROTECTIVE EQUIPMENT**

**R 408.13387**  
Source: 1997 AACS.

**R 408.13390**  
Source: 1997 AACS.

**HAND PROTECTION**

**R 408.13392**  
Source: 1995 AACS.

**R 408.13394**  
Source: 1997 AACS.

**R 408.13398**  
Source: 1983 AACS.

**PART 35. FACE AND EYE PROTECTION**

**R 408.13501—R 408.13569**  
Source: 1997 AACS.

**R 408.13503**  
Source: 1997 AACS.



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**R 408.13504**  
Source: 1997 AACCS.

**R 408.13505**  
Source: 1997 AACCS.

**R 408.13506**  
Source: 1997 AACCS.

**R 408.13508**  
Source: 1997 AACCS.

**R 408.13511**  
Source: 1997 AACCS.

**R 408.13512**  
Source: 1997 AACCS.

**R 408.13513**  
Source: 1997 AACCS.

**R 408.13514**  
Source: 1997 AACCS.

**R 408.13521**  
Source: 1997 AACCS.

**R 408.13522**  
Source: 1997 AACCS.

**R 408.13523**  
Source: 1997 AACCS.

**R 408.13524**  
Source: 1997 AACCS.

**R 408.13525**  
Source: 1997 AACCS.

**R 408.13526**  
Source: 1997 AACCS.

**R 408.13528**  
Source: 1997 AACCS.

**R 408.13530**  
Source: 1997 AACCS.

**R 408.13531**  
Source: 1997 AACCS.

**R 408.13533**  
Source: 1997 AACCS.

**R 408.13541**  
Source: 1997 AACCS.

**R 408.13542**  
Source: 1997 AACCS.

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**R 408.13543**  
Source: 1997 AACS.

**R 408.13544**  
Source: 1997 AACS.

**R 408.13545**  
Source: 1997 AACS.

**R 408.13546**  
Source: 1997 AACS.

**R 408.13547**  
Source: 1997 AACS.

**R 408.13551**  
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**R 408.13552**  
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**R 408.13553**  
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**R 408.13555**  
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**R 408.13556**  
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**R 408.13557**  
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**R 408.13559**  
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**R 408.13560**  
Source: 1997 AACS.

**R 408.13562**  
Source: 1997 AACS.

**R 408.13563**  
Source: 1997 AACS.

**R 408.13564**  
Source: 1997 AACS.

**R 408.13566**  
Source: 1997 AACS.

**R 408.13567**  
Source: 1997 AACS.

**R 408.13569**  
Source: 1997 AACS.

**PART 37. ACCIDENT PREVENTION SIGNS AND TAGS**

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**TAGS**

**R 408.13703**  
Source: 1983 AACS.

**R 408.13707**  
Source: 1983 AACS.

**R 408.13708**  
Source: 1983 AACS.

**R 408.13711**  
Source: 1983 AACS.

**R 408.13713**  
Source: 1983 AACS.

**R 408.13714**  
Source: 1983 AACS.

**R 408.13715**  
Source: 1983 AACS.

**R 408.13716**  
Source: 1983 AACS.

**R 408.13717**  
Source: 1997 AACS.

**R 408.13718**  
Source: 1997 AACS.

**R 408.13721**  
Source: 1983 AACS.

**R 408.13722**  
Source: 1997 AACS.

**R 408.13731**  
Source: 1988 AACS.

**R 408.13732**  
Source: 1983 AACS.

**R 408.13733**  
Source: 1983 AACS.

**R 408.13734**  
Source: 1983 AACS.

**R 408.13735**  
Source: 1983 AACS.

**R 408.13736**  
Source: 1997 AACS.

**PART 38. HAND AND PORTABLE POWERED TOOLS**

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**R 408.13811**  
Source: 1993 AACS.

**R 408.13812**  
Source: 1993 AACS.

**R 408.13821**  
Source: 1983 AACS.

**R 408.13822**  
Source: 1983 AACS.

**R 408.13823**  
Source: 1983 AACS.

**R 408.13832**  
Source: 1997 AACS.

**R 408.13847**  
Source: 1983 AACS.

**R 408.13861**  
Source: 1983 AACS.

**R 408.13865**  
Source: 1983 AACS.

**R 408.13871**  
Source: 1983 AACS.

**R 408.13872**  
Source: 1983 AACS.

**R 408.13873**  
Source: 1983 AACS.

**R 408.13874**  
Source: 1983 AACS.

**R 408.13875**  
Source: 1983 AACS.

**R 408.13876**  
Source: 1997 AACS.

**R 408.13881**  
Source: 1983 AACS.

**R 408.13882**  
Source: 1993 AACS.

**PART 39. DESIGN SAFETY STANDARDS FOR ELECTRICAL SYSTEMS**

**R 408.13901**  
Source: 1994 AACS.

**R 408.13902**  
Source: 1994 AACS.

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**PART 40. SAFETY-RELATED WORK PRACTICES**

**R 408.14001**  
Source: 1992 AACS.

**R 408.14002**  
Source: 1992 AACS.

**R 408.14003**  
Source: 1992 AACS.

**R 408.14004**  
Source: 1992 AACS.

**R 408.14005**  
Source: 1992 AACS.

**R 408.14006**  
Source: 1992 AACS.

**R 408.14007**  
Source: 1992 AACS.

**R 408.14008**  
Source: 1992 AACS.

**R 408.14009**  
Source: 1992 AACS.

**PART 42. FORGING**

**R 408.14204**  
Source: 1989 AACS.

**R 408.14221**  
Source: 1997 AACS.

**R 408.14225**  
Source: 1997 AACS.

**R 408.14232**  
Source: 1989 AACS.

**PART 44. FOUNDRIES**

**R 408.14421**  
Source: 1988 AACS.

**R 408.14423**  
Source: 1997 AACS.

**R 408.14425**  
Source: 1997 AACS.

**R 408.14426**  
Source: 1997 AACS.

**R 408.14427**  
Source: 1997 AACS.

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**R 408.14431**  
Source: 1997 AACS.

**R 408.14433**  
Source: 1988 AACS.

**R 408.14436**  
Source: 1988 AACS.

**R 408.14438**  
Source: 1997 AACS.

**R 408.14447**  
Source: 1997 AACS.

**R 408.14451**  
Source: 1988 AACS.

**R 408.14461**  
Source: 1988 AACS.

**R 408.14463**  
Source: 1988 AACS.

**R 408.14465**  
Source: 1988 AACS.

**R 408.14466**  
Source: 1988 AACS.

**R 408.14471**  
Source: 1988 AACS.

**R 408.14474**  
Source: 1997 AACS.

**R 408.14477**  
Source: 1997 AACS.

**R 408.14478**  
Source: 1988 AACS.

**R 408.14479**  
Source: 1997 AACS.

**R 408.14481**  
Source: 1997 AACS.

**R 408.14483**  
Source: 1997 AACS.

**R 408.14485**  
Source: 1997 AACS.

**R 408.14486**  
Source: 1997 AACS.

**R 408.14488**  
Source: 1988 AACS.

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**R 408.14492**  
Source: 1988 AACS.

**R 408.14493**  
Source: 1988 AACS.

**R 408.14494**  
Source: 1997 AACS.

**R 408.14496**  
Source: 1997 AACS.

**PART 45. DIE CASTING**

**R 408.14511**  
Source: 1983 AACS.

**R 408.14515**  
Source: 1997 AACS.

**R 408.14517**  
Source: 1997 AACS.

**EQUIPMENT INSTALLATION AND MAINTENANCE**

**R 408.14521**  
Source: 1997 AACS.

**DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES**

**BUREAU OF SAFETY AND REGULATION**

**GENERAL INDUSTRY SAFETY STANDARDS COMMISSION**

**PART 49. SLINGS**

**R 408.14913**  
Source: 1998-2000 AACS.

**R 408.14923**  
Source: 1998-2000 AACS.

**PART 51. LOGGING**

**GENERAL PROVISIONS**

**R 408.15101**  
Source: 1996 AACS.

**R 408.15105**  
Source: 1996 AACS.

**R 408.15106**  
Source: 1996 AACS.

**R 408.15107**

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**Source:** 1996 AACS.

**R 408.15108**

**Source:** 1996 AACS.

**EMPLOYER-EMPLOYEE RESPONSIBILITIES**

**R 408.15112**

**Source:** 1989 AACS.

**R 408.15113**

**Source:** 1989 AACS.

**R 408.15114**

**Source:** 1996 AACS.

**R 408.15116**

**Source:** 1989 AACS.

**R 408.15117**

**Source:** 1996 AACS.

**R 408.15118**

**Source:** 1996 AACS.

**R 408.15119**

**Source:** 1996 AACS.

**PERSONAL PROTECTIVE EQUIPMENT**

**R 408.15120**

**Source:** 1996 AACS.

**R 408.15122**

**Source:** 1996 AACS.

**R 408.15123**

**Source:** 1996 AACS.

**R 408.15124**

**Source:** 1996 AACS.

**R 408.15125**

**Source:** 1996 AACS.

**R 408.15127**

**Source:** 1996 AACS.

**PROTECTIVE EQUIPMENT**

**HAND-HELD CHAIN SAWS**

**R 408.15130**

**Source:** 1996 AACS.

**R 408.15131**

**Source:** 1996 AACS.



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**R 408.15132**  
Source: 1997 AACS.

**R 408.15133**  
Source: 1997 AACS.

**R 408.15134**  
Source: 1997 AACS.

**R 408.15135**  
Source: 1997 AACS.

**R 408.15136**  
Source: 1996 AACS.

**OTHER SAWS**

**R 408.15137**  
Source: 1989 AACS.

**R 408.15138**  
Source: 1989 AACS.

**LOGGING EQUIPMENT**

**R 408.15142**  
Source: 1996 AACS.

**R 408.15143**  
Source: 1989 AACS.

**R 408.15144**  
Source: 1996 AACS.

**R 408.15145**  
Source: 1997 AACS.

**R 408.15146**  
Source: 1996 AACS.

**R 408.15147**  
Source: 1997 AACS.

**R 408.15148**  
Source: 1996 AACS.

**R 408.15149**  
Source: 1996 AACS.

**R 408.15150**  
Source: 1996 AACS.

**FELLING, LIMBING, BUCKING, AND SKIDDING**

**R 408.15151**  
Source: 1996 AACS.

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**R 408.15153**  
Source: 1989 AACS.

**R 408.15154**  
Source: 1989 AACS.

**R 408.15155**  
Source: 1996 AACS.

**R 408.15156**  
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**R 408.15157**  
Source: 1996 AACS.

**R 408.15158**  
Source: 1996 AACS.

**R 408.15159**  
Source: 1997 AACS.

**LOADING AND DECKING**

**R 408.15161**  
Source: 1997 AACS.

**R 408.15162**  
Source: 1997 AACS.

**R 408.15163**  
Source: 1997 AACS.

**R 408.15164**  
Source: 1997 AACS.

**TRUCK EQUIPMENT AND OPERATION**

**R 408.15171**  
Source: 1997 AACS.

**R 408.15173**  
Source: 1997 AACS.

**R 408.15174**  
Source: 1997 AACS.

**R 408.15175**  
Source: 1996 AACS.

**R 408.15180**  
Source: 1989 AACS.

**R 408.15181**  
Source: 1989 AACS.

**PART 52. SAWMILLS**

**R 408.15202**

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**Source:** 1989 AACS.

**R 408.15203**

**Source:** 1989 AACS.

**R 408.15204**

**Source:** 1989 AACS.

**R 408.15205**

**Source:** 1989 AACS.

**R 408.15207**

**Source:** 1989 AACS.

**R 408.15211**

**Source:** 1989 AACS.

**R 408.15212**

**Source:** 1989 AACS.

**R 408.15222**

**Source:** 1989 AACS.

**R 408.15225**

**Source:** 1989 AACS.

**R 408.15226**

**Source:** 1989 AACS.

**SPECIFIC EQUIPMENT**

**R 408.15231**

**Source:** 1989 AACS.

**R 408.15232**

**Source:** 1989 AACS.

**R 408.15233**

**Source:** 1989 AACS.

**R 408.15234**

**Source:** 1989 AACS.

**R 408.15241**

**Source:** 1989 AACS.

**R 408.15242**

**Source:** 1989 AACS.

**R 408.15246**

**Source:** 1989 AACS.

**R 408.15247**

**Source:** 1989 AACS.

**R 408.15262**

**Source:** 1989 AACS.

**LOG AND MATERIAL HANDLING AND STORAGE**

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**R 408.15273**  
Source: 1989 AACS.

**R 408.15274**  
Source: 1983 AACS.

**R 408.15275**  
Source: 1997 AACS.

**R 408.15277**  
Source: 1997 AACS.

**PART 53. TREE TRIMMING AND REMOVAL**

**R 408.15313**  
Source: 1983 AACS.

**PART 54. POWERED GROUNDSKEEPING EQUIPMENT**

**R 408.15411**  
Source: 1983 AACS.

**R 408.15413**  
Source: 1983 AACS.

**R 408.15415**  
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**R 408.15416**  
Source: 1983 AACS.

**R 408.15421**  
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**R 408.15422**  
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**R 408.15423**  
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**R 408.15424**  
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**R 408.15425**  
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**R 408.15429**  
Source: 1983 AACS.

**R 408.15431**  
Source: 1997 AACS.

**R 408.15452**  
Source: 1983 AACS.

**R 408.15461**  
Source: 1983 AACS.

**PART 55. EXPLOSIVES**

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**R 408.15501**  
Source: 1998-2000 AACS.

**PART 56. STORAGE AND HANDLING OF LIQUEFIED PETROLEUM GASES**

**R 408.15601**  
Source: 1998-2000 AACS.

**PART 57. OIL AND GAS DRILLING AND SERVICING OPERATIONS**

**R 408.15701**  
Source: 1989 AACS.

**R 408.15703**  
Source: 1989 AACS.

**R 408.15704**  
Source: 1989 AACS.

**R 408.15705**  
Source: 1989 AACS.

**R 408.15706**  
Source: 1989 AACS.

**R 408.15707**  
Source: 1989 AACS.

**R 408.15708**  
Source: 1989 AACS.

**R 408.15711**  
Source: 1989 AACS.

**R 408.15712**  
Source: 1989 AACS.

**R 408.15713**  
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**R 408.15715**  
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**R 408.15718**  
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**R 408.15719**  
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**R 408.15721**  
Source: 1989 AACS.

**R 408.15722**  
Source: 1989 AACS.

**R 408.15723**  
Source: 1989 AACS.

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**R 408.15725**  
Source: 1989 AACS.

**R 408.15726**  
Source: 1989 AACS.

**EQUIPMENT**

**R 408.15731**  
Source: 1989 AACS.

**R 408.15732**  
Source: 1989 AACS.

**R 408.15734**  
Source: 1989 AACS.

**R 408.15736**  
Source: 1989 AACS.

**R 408.15737**  
Source: 1994 AACS.

**R 408.15739**  
Source: 1989 AACS.

**R 408.15741**  
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**R 408.15743**  
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**R 408.15744**  
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**R 408.15745**  
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**R 408.15753**  
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**R 408.15754**  
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**R 408.15755**  
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**R 408.15756**  
Source: 1989 AACS.

**R 408.15757**  
Source: 1989 AACS.

**OTHER SPECIAL SERVICE OPERATIONS**

**R 408.15761**  
Source: 1989 AACS.

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**R 408.15762**  
Source: 1989 AACS.

**R 408.15763**  
Source: 1997 AACS.

**R 408.15764**  
Source: 1989 AACS.

**R 408.15765**  
Source: 1997 AACS.

**R 408.15766**  
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**R 408.15767**  
Source: 1997 AACS.

**R 408.15768**  
Source: 1989 AACS.

**R 408.15769**  
Source: 1997 AACS.

**R 408.15771**  
Source: 1989 AACS.

**PART 58. VEHICLE-MOUNTED ELEVATING AND ROTATING WORK PLATFORMS**

**R 408.15803**  
Source: 1988 AACS.

**R 408.15830**  
Source: 1988 AACS.

**R 408.15831**  
Source: 1988 AACS.

**R 408.15832**  
Source: 1988 AACS.

**PART 59. HELICOPTERS**

**R 408.15915**  
Source: 1983 AACS.

**PART 62. PLASTIC MOLDING**

**R 408.16201**  
Source: 1992 AACS.

**R 408.16204**  
Source: 1992 AACS.

**R 408.16206**  
Source: 1992 AACS.

**R 408.16222**  
Source: 1992 AACS.

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**R 408.16223**  
Source: 1992 AACS.

**R 408.16225**  
Source: 1992 AACS.

**R 408.16226**  
Source: 1992 AACS.

**R 408.16227**  
Source: 1998-2000 AACS.

**SPECIFIC EQUIPMENT**

**R 408.16231**  
Source: 1992 AACS.

**R 408.16232**  
Source: 1992 AACS.

**R 408.16234**  
Source: 1998-2000 AACS.

**R 408.16235**  
Source: 1992 AACS.

**R 408.16236**  
Source: 1992 AACS.

**R 408.16242**  
Source: 1992 AACS.

**R 408.16243**  
Source: 1992 AACS.

**R 408.16245**  
Source: 1992 AACS.

**R 408.16246**  
Source: 1992 AACS.

**R 408.16251**  
Source: 1992 AACS.

**PART 63. PULP, PAPER, AND PAPERBOARD MILLS**

**R 408.16305**  
Source: 1993 AACS.

**R 408.16311**  
Source: 1993 AACS.

**R 408.16313**  
Source: 1993 AACS.

**R 408.16321**  
Source: 1993 AACS.



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**R 408.16328**  
Source: 1993 AACS.

**R 408.16333**  
Source: 1983 AACS.

**R 408.16351**  
Source: 1993 AACS.

**R 408.16378**  
Source: 1981 AACS.

**PART 69. COMPRESSED AIR AND GASES, EQUIPMENT, AND SYSTEMS**

**R 408.16901**  
Source: 1998-2000 AACS.

**R 408.16902**  
Source: 1998-2000 AACS.

**PART 71. LAUNDRY AND DRY CLEANING MACHINERY AND OPERATIONS**

**R 408.17111**  
Source: 1983 AACS.

**R 408.17122**  
Source: 1981 AACS.

**R 408.17123**  
Source: 1997 AACS.

**R 408.17124**  
Source: 1997 AACS.

**R 408.17125**  
Source: 1981 AACS.

**R 408.17143**  
Source: 1981 AACS.

**R 408.17147**  
Source: 1997 AACS.

**PART 72. AUTOMOTIVE SERVICE OPERATIONS**

**R 408.17201**  
Source: 1990 AACS.

**R 408.17206**  
Source: 1990 AACS.

**R 408.17235**  
Source: 1993 AACS.

**R 408.17236**  
Source: 1990 AACS.

**R 408.17237**

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**Source:** 1990 AACS.

**R 408.17253**

**Source:** 1990 AACS.

**PART 73. FIRE BRIGADES**

**R 408.17301**

**Source:** 1984 AACS.

**R 408.17303**

**Source:** 1998-2000 AACS.

**R 408.17305**

**Source:** 1984 AACS.

**R 408.17307**

**Source:** 1984 AACS.

**R 408.17309**

**Source:** 1984 AACS.

**R 408.17310**

**Source:** 1998-2000 AACS.

**R 408.17312**

**Source:** 1984 AACS.

**R 408.17314**

**Source:** 1998-2000 AACS.

**R 408.17315**

**Source:** 1998-2000 AACS.

**R 408.17316.**

**Source:** 1998-2000 AACS.

**R 408.17317**

**Source:** 1998-2000 AACS.

**R 408.17318**

**Source:** 1998-2000 AACS.

**R 408.17320**

**Source:** 1998-2000 AACS.

**R 408.17322**

**Source:** 1998-2000 AACS.

**PART 74. FIRE FIGHTING**

**R 408.17401**

**Source:** 2001 AACS.

**R 408.17402**

**Source:** 1988 AACS.

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**R 408.17403**  
Source: 2001 AACS.

**R 408.17404**  
Source: 2001 AACS.

**R 408.17405**  
Source: 2001 AACS.

**R 408.17411**  
Source: 2001 AACS.

**R 408.17415**  
Source: 2001 AACS.

**CONSTRUCTION AND USE OF EQUIPMENT**

**R 408.17421**  
Source: 2001 AACS.

**R 408.17422**  
Source: 2001 AACS.

**R 408.17423**  
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**R 408.17424**  
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**R 408.17425**  
Source: 2001 AACS.

**R 408.17426**  
Source: 2001 AACS.

**PERSONAL PROTECTIVE EQUIPMENT**

**R 408.17431**  
Source: 2001 AACS.

**R 408.17432**  
Source: 2001 AACS.

**R 408.17433**  
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**R 408.17434**  
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**R 408.17435**  
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**R 408.17436**  
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**R 408.17437**  
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**TOOLS**

**R 408.17440**  
Source: 2001 AACS.

**R 408.17442**  
Source: 2001 AACS.

**OPERATIONS**

**R 408.17451**  
Source: 2001 AACS.

**R 408.17452**  
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**INSPECTIONS**

**R 408.17461**  
Source: 1993 AACS.

**R 408.17462**  
Source: 1997 AACS.

**R 408.17463**  
Source: 2001 AACS.

**R 408.17464**  
Source: 2001 AACS.

**PART 75. FLAMMABLE AND COMBUSTIBLE LIQUIDS**

**R 408.17501**  
Source: 1982 AACS.

**PART 76. SPRAY FINISHING AND DIP TANKS**

**R 408.17601**  
Source: 1989 AACS.

**R 408.17602**  
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**R 408.17603**  
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**R 408.17605**  
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**R 408.17607**  
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**R 408.17609**  
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**R 408.17610**  
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**R 408.17612**  
Source: 1993 AACS.

**R 408.17613**  
Source: 1989 AACS.

**R 408.17614**  
Source: 1989 AACS.

**R 408.17615**  
Source: 1993 AACS.

**R 408.17616**  
Source: 1989 AACS.

**R 408.17618**  
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**DIP TANKS**

**R 408.17620**  
Source: 1989 AACS.

**R 408.17621**  
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**R 408.17622**  
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**R 408.17623**  
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**R 408.17624**  
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**R 408.17630**  
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**R 408.17631**  
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**R 408.17632**  
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**R 408.17633**  
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**FIRE PROTECTION**

**R 408.17636**  
Source: 1989 AACS.

**R 408.17637**  
Source: 1989 AACS.

**FLAMMABLE AND COMBUSTIBLE LIQUIDS**

**R 408.17640**

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**Source:** 1989 AACS.

**R 408.17641**

**Source:** 1989 AACS.

**ELECTRICAL AND OTHER SOURCES OF IGNITION**

**R 408.17650**

**Source:** 1989 AACS.

**R 408.17651**

**Source:** 1989 AACS.

**R 408.17696**

**Source:** 1989 AACS.

**R 408.17699**

**Source:** 1989 AACS.

**PART 77. GRAIN HANDLING FACILITIES**

**R 408.17701**

**Source:** 1997 AACS.

**R 408.17702**

**Source:** 1988 AACS.

**R 408.17703**

**Source:** 1997 AACS.

**R 408.17704**

**Source:** 1988 AACS.

**R 408.17705**

**Source:** 1997 AACS.

**R 408.17706**

**Source:** 1988 AACS.

**R 408.17707**

**Source:** 1997 AACS.

**R 408.17708**

**Source:** 1988 AACS.

**R 408.17709**

**Source:** 1988 AACS.

**R 408.17710**

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**R 408.17711**

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**R 408.17713**

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**R 408.17714**  
Source: 1988 AACS.

**R 408.17715**  
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**R 408.17716**  
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**R 408.17717**  
Source: 1988 AACS.

**R 408.17719**  
Source: 1997 AACS.

**PART 78. ANHYDROUS AMMONIA**

**R 408.17801**  
Source: 1998-2000 AACS.

**PART 79. DIVING OPERATIONS**

**R 408.17903**  
Source: 1993 AACS.

**R 408.17904**  
Source: 1993 AACS.

**R 408.17905**  
Source: 1993 AACS.

**R 408.17906**  
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**R 408.17907**  
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**R 408.17909**  
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**R 408.17911**  
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**R 408.17914**  
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**R 408.17921**  
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**R 408.17922**  
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**R 408.17923**  
Source: 1993 AACs.

**R 408.17924**  
Source: 1993 AACs.

**R 408.17925**  
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**R 408.17926**  
Source: 1993 AACs.

**R 408.17927**  
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**R 408.17931**  
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**R 408.17932**  
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**R 408.17942**  
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**R 408.17945**  
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**R 408.17946**  
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**R 408.17951**  
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**R 408.17952**  
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**R 408.17953**  
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**R 408.17954**  
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**R 408.17955**  
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**R 408.17956**  
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**R 408.17958**  
Source: 1993 AACS.

**R 408.17961**  
Source: 1993 AACS.

**R 408.17962**  
Source: 1993 AACS.

**PART 81. BAKING OPERATIONS**

**R 408.18111**  
Source: 1982 AACS.

**R 408.18114**  
Source: 1982 AACS.

**R 408.18116**  
Source: 1982 AACS.

**R 408.18117**  
Source: 1982 AACS.

**R 408.18121**  
Source: 1982 AACS.

**R 408.18122**  
Source: 1982 AACS.

**R 408.18123**  
Source: 1982 AACS.

**R 408.18124**  
Source: 1982 AACS.

**R 408.18126**  
Source: 1982 AACS.

**R 408.18127**  
Source: 1982 AACS.

**R 408.18130**  
Source: 1982 AACS.

**R 408.18134**  
Source: 1982 AACS.

**R 408.18142**  
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**R 408.18143**  
Source: 1982 AACS.

**R 408.18144**  
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**R 408.18145**  
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**R 408.18146**  
Source: 1982 AACS.

**R 408.18153**  
Source: 1982 AACS.

**R 408.18158**  
Source: 1982 AACS.

**R 408.18171**  
Source: 1982 AACS.

**R 408.18181**  
Source: 1982 AACS.

**PART 85. THE CONTROL OF HAZARDOUS ENERGY SOURCES**

**R 408.18501**  
Source: 1993 AACS.

**R 408.18502**  
Source: 1993 AACS.

**R 408.18599**  
Source: 1993 AACS.

**PART 86. ELECTRIC POWER GENERATION, TRANSMISSION, AND DISTRIBUTION**

**R 408.18601**  
Source: 1995 AACS.

**R 408.18602**  
Source: 1997 AACS.

**PART 90. CONFINED SPACE ENTRY**

**R 408.19001**  
Source: 1993 AACS.

**R 408.19002**  
Source: 1998-2000 AACS.

**PART 91. PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS**

**R 408.19101**  
Source: 1998-2000 AACS.

**R 408.19102**  
Source: 1998-2000 AACS.

**PART 92. HAZARD COMMUNICATION**

**R 408.19201**  
Source: 1995 AACS.

**R 408.19202**  
Source: 1995 AACS.

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**R 408.19203**  
Source: 1995 AACS.

**PART 93. AIR RECEIVERS**

**R 408.19301**  
Source: 1998-2000 AACS.

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**GENERAL INDUSTRY SAFETY STANDARDS COMMISSION**

**COMPLIANCE AND APPEALS**

**R 408.19901**  
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**R 408.19902**  
Source: 1998-2000 AACS.

**R 408.19903**  
Source: 1998-2000 AACS.

**R 408.19904**  
Source: 1998-2000 AACS.

**R 408.19905**  
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**R 408.19906**  
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**R 408.19907**  
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**R 408.19908**  
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**R 408.19909**  
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**R 408.19910**  
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**DEPARTMENT ORGANIZATION AND GENERAL FUNCTIONS**

**PART 1. DIRECTOR'S OFFICE**

**R 408.20001**  
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**R 408.20002**  
Source: 1997 AACS.

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**R 408.20003**  
Source: 1997 AACS.

**R 408.20004**  
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**R 408.20005**  
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**R 408.20006**  
Source: 1997 AACS.

**PART 2. BUREAU OF ADMINISTRATIVE SERVICES**

**R 408.20011**  
Source: 1997 AACS.

**R 408.20012**  
Source: 1997 AACS.

**R 408.20013**  
Source: 1997 AACS.

**R 408.20014**  
Source: 1997 AACS.

**R 408.20015**  
Source: 1997 AACS.

**PART 3. BUREAU OF SAFETY AND REGULATION**

**R 408.20021—R 408.20031**  
Source: 1997 AACS.

**PART 4. EMPLOYMENT RELATIONS COMMISSION**

**R 408.20041**  
Source: 1997 AACS.

**R 408.20042**  
Source: 1997 AACS.

**R 408.20043**  
Source: 1997 AACS.

**PART 5. WORKMEN'S COMPENSATION AGENCIES**

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**R 408.20051**  
Source: 1997 AACS.

**R 408.20052**  
Source: 1997 AACS.

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**R 408.20053**  
Source: 1997 AACS.

**R 408.20054**  
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**R 408.20055**  
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**R 408.20056**  
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**R 408.20057**  
Source: 1997 AACS.

**PART 6. EMPLOYMENT SECURITY AGENCIES**

**R 408.20061**  
Source: 1997 AACS.

**R 408.20062**  
Source: 1997 AACS.

**R 408.20063**  
Source: 1997 AACS.

**R 408.20064**  
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**R 408.20065**  
Source: 1997 AACS.

**PART 7. OTHER BOARDS AND COMMISSIONS**

**R 408.20071**  
Source: 1997 AACS.

**R 408.20072**  
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**R 408.20073**  
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**R 408.20074**  
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**R 408.20075**  
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**R 408.20076**  
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**R 408.20077**  
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**R 408.20078**  
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**R 408.20079**  
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**R 408.20080**  
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**R 408.20081**  
Source: 1997 AACS.

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**PART 11. RECORDING AND REPORTING OF OCCUPATIONAL  
INJURIES AND ILLNESSES**

**R 408.22101**  
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**R 408.22102**  
Source: 2001 AACS.

**R 408.22103**  
Source: 2002 AACS.

**R 408.22104**  
Source: 1998-2000 AACS.

**R 408.22105**  
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**R 408.22106**  
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**R 408.22107**  
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**R 408.22108**  
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**R 408.22109**  
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**R 408.22110**  
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**R 408.22111**  
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**R 408.22112**  
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**R 408.22113**  
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**R 408.22114**  
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**R 408.22115**  
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**R 408.22116**  
Source: 2001 AACS.

**R 408.22117**  
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**R 408.22119**  
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**R 408.22120**  
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**R 408.22143**  
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**R 408.22151**  
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**R 408.22161**  
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**R 408.22162**  
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**PART 12. VARIANCES**

**R 408.22203**  
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**R 408.22213**  
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**R 408.22221**  
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**R 408.22224**  
Source: 1998-2000 AACS.

**R 408.22227**  
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**R 408.22234**



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**Source:** 1998-2000 AACS.

**R 408.22240**

**Source:** 1998-2000 AACS.

**HEARINGS OFFICE  
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**R 408.22901**

**Source:** 1981 AACS.

**R 408.22902**

**Source:** 1981 AACS.

**WAGE AND FRINGE BENEFIT HEARINGS**

**R 408.22951**

**Source:** 1982 AACS.

**R 408.22952**

**Source:** 1982 AACS.

**R 408.22953**

**Source:** 1982 AACS.

**R 408.22954**

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**R 408.22956**

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**R 408.22958**

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**R 408.22959**

**Source:** 1982 AACS.

**R 408.22960**

**Source:** 1982 AACS.

**R 408.22961**

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**R 408.22962**

**Source:** 1982 AACS.

**R 408.22963**

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**R 408.22964**

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**R 408.22965**  
Source: 1982 AACS.

**R 408.22966**  
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**R 408.22967**  
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**R 408.22969**  
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**R 408.22970**  
Source: 1982 AACS.

**R 408.22971**  
Source: 1982 AACS.

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**R 408.30001**  
Source: 1991 AACS.

**R 408.30004**  
Source: 1991 AACS.

**R 408.30007**  
Source: 1991 AACS.

**R 408.30010**  
Source: 1991 AACS.

**R 408.30013**  
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**R 408.30016**  
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**R 408.30019**  
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**R 408.30022**  
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**R 408.30025**  
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**R 408.30031**  
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**R 408.30037**  
Source: 1998-2000 AACS.

**R 408.30040**  
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**R 408.30043**  
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**R 408.30046**  
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**R 408.30049**  
Source: 1991 AACS.

**R 408.30052**  
Source: 1991 AACS.

**R 408.30055**  
Source: 1991 AACS.

**CONSTRUCTION CODE**

**PART 1. ADMINISTRATION AND ENFORCEMENT**

**R 408.30111**  
Source: 1981 AACS.

**R 408.30114**  
Source: 1981 AACS.

**PART 3. APPEAL BOARDS AND HEARINGS**

**R 408.30316**  
Source: 1987 AACS.

**PART 4. BUILDING CODE**

**R 408.30401**  
Source: 2001 AACS.

**R 408.30402**  
Source: 2001 AACS.

**408.30403**  
Source: 1998-2000 AACS.

**R 408.30403a**  
Source: 1997 AACS.

**R 408.30404**  
Source: 2001 AACS.

**R 408.30405**  
Source: 2001 AACS.

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- R 408.30406**  
Source: 2001 AACS.
- R 408.30407**  
Source: 1998-2000 AACS.
- R 408.30408**  
Source: 2001 AACS.
- R 408.30409**  
Source: 2001 AACS.
- R 408.30410**  
Source: 2001 AACS.
- R 408.30411**  
Source: 2001 AACS.
- R 408.30412**  
Source: 2001 AACS.
- R 408.30413**  
Source: 1997 AACS.
- R 408.30414**  
Source: 1997 AACS.
- R 408.30415**  
Source: 1997 AACS.
- R 408.30415a**  
Source: 2001 AACS.
- R 408.30416**  
Source: 1997 AACS.
- R 408.30417**  
Source: 1997 AACS.
- R 408.30418**  
Source: 1997 AACS.
- R 408.30419**  
Source: 1997 AACS.
- R 408.30420**  
Source: 1997 AACS.
- R 408.30421**  
Source: 1997 AACS.
- R 408.30422**  
Source: 1997 AACS.
- R 408.30423**  
Source: 1997 AACS.
- R 408.30427**  
Source: 2001 AACS.

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**R 408.30427a**  
Source: 2001 AACS.

**R 408.30427b**  
Source: 2001 AACS.

**R 408.30427c**  
Source: 2001 AACS.

**R 408.30427d**  
Source: 2001 AACS.

**R 408.30427e**  
Source: 2001 AACS.

**R 408.30428**  
Source: 1997 AACS.

**R 408.30429**  
Source: 2001 AACS.

**R 408.30429a**  
Source: 2002 AACS.

**R 408.30430**  
Source: 2001 AACS.

**R 408.30431**  
Source: 1997 AACS.

**R 408.30432**  
Source: 2001 AACS.

**R 408.30433**  
Source: 1998-2000 AACS.

**R 408.30434**  
Source: 1997 AACS.

**R 408.30437**  
Source: 2001 AACS.

**R 408.30442**  
Source: 1997 AACS.

**R 408.30443**  
Source: 2001 AACS.

**R 408.30445**  
Source: 1998-2000 AACS.

**R 408.30446**  
Source: 1997 AACS.

**R 408.30447**  
Source: 2001 AACS.

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- R 408.30448**  
Source: 2001 AACS.
- R 408.30448a**  
Source: 1997 AACS.
- R 408.30448b**  
Source: 1997 AACS.
- R 408.30448c**  
Source: 1997 AACS.
- R 408.30448d**  
Source: 2001 AACS.
- R 408.30449**  
Source: 2001 AACS.
- R 408.30449a**  
Source: 1997 AACS.
- R 408.30451e**  
Source: 1998-2000 AACS.
- R 408.30451a**  
Source: 1997 AACS.
- R 408.30451b**  
Source: 1997 AACS.
- R 408.30451c**  
Source: 2001 AACS.
- R 408.30451d**  
Source: 1997 AACS.
- R 408.30451e**  
Source: 1995 AACS.
- R 408.30452**  
Source: 1997 AACS.
- R 408.30453**  
Source: 2001 AACS.
- R 408.30454**  
Source: 1998-2000 AACS.
- R 408.30455**  
Source: 1998-2000 AACS.
- R 408.30456**  
Source: 1998-2000 AACS.
- R 408.30457**  
Source: 2001 AACS.
- R 408.30458**

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Source: 2001 AACS.

**R 408.30459**

Source: 1997 AACS.

**R 408.30460**

Source: 1997 AACS.

**R 408.30461**

Source: 2001 AACS.

**R 408.30475**

Source: 2001 AACS.

**R 408.30476**

Source: 2001 AACS.

**R 408.30495**

Source: 2001 AACS.

**R 408.30495a**

Source: 1995 AACS.

**R 408.30495b**

Source: 1997 AACS.

**R 408.30495c**

Source: 1997 AACS.

**R 408.30495d**

Source: 1997 AACS.

**R 408.30495e**

Source: 1997 AACS.

**R 408.30495f**

Source: 1997 AACS.

**R 408.30495g**

Source: 1997 AACS.

**R 408.30495h**

Source: 1997 AACS.

**R 408.30495i**

Source: 1997 AACS.

**R 408.30495j**

Source: 1997 AACS.

**R 408.30495k**

Source: 1997 AACS.

**R 408.30497**

Source: 2001 AACS.

**R 408.30499**

Source: 2001 AACS.

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**R 408.30499a**  
Source: 2001 AACS.

**RESIDENTIAL CODE**

**R 408.30501**  
Source: 2001 AACS.

**R 408.30502**  
Source: 2001 AACS.

**R 408.30503**  
Source: 2001 AACS.

**R 408.30504**  
Source: 2001 AACS.

**R 408.30505**  
Source: 2001 AACS.

**R 408.30506**  
Source: 2001 AACS.

**R 408.30507**  
Source: 2001 AACS.

**R 408.30508**  
Source: 2001 AACS.

**R 408.30509**  
Source: 2001 AACS.

**R 408.30510**  
Source: 2001 AACS.

**R 408.30511**  
Source: 2001 AACS.

**R 408.30512**  
Source: 2001 AACS.

**R 408.30513**  
Source: 2001 AACS.

**R 408.30514**  
Source: 2001 AACS.

**R 408.30516**  
Source: 2001 AACS.

**R 408.30517**  
Source: 2001 AACS.

**R 408.30518**  
Source: 2001 AACS.

**R 408.30519**  
Source: 2001 AACS.



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**R 408.30520**  
Source: 2001 AACS.

**R 408.30521**  
Source: 2001 AACS.

**R 408.30522**  
Source: 2001 AACS.

**R 408.30523**  
Source: 2001 AACS.

**R 408.30524**  
Source: 2001 AACS.

**R 408.30525**  
Source: 2001 AACS.

**R 408.30526**  
Source: 2001 AACS.

**R 408.30527**  
Source: 2001 AACS.

**R 408.30528**  
Source: 2001 AACS.

**R 408.30529**  
Source: 2001 AACS.

**R 408.30530**  
Source: 2001 AACS.

**R 408.30531**  
Source: 2001 AACS.

**R 408.30532**  
Source: 2001 AACS.

**R 408.30533**  
Source: 2001 AACS.

**R 408.30534**  
Source: 2001 AACS.

**R 408.30535**  
Source: 2001 AACS.

**R 408.30536**  
Source: 2001 AACS.

**R 408.30537**  
Source: 2001 AACS.

**R 408.30538**  
Source: 2001 AACS.

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**REHABILITATION CODE**

**R 408.30551 Applicable code.**

Rule 551. The international existing building code, 2003 edition, including appendix A and resource A, hereinafter referred to as "the code," is adopted by reference, as provided in MCL 24.232, as the "Michigan rehabilitation code for existing buildings" with the exception of sections 104.8, 108.2 through 108.6, 112.2, 112.3, 114.3, 506.1.1 through 506.2, and 1004.1.1 through 1004.1.5, and as otherwise noted in these rules. The international existing building code, 2003 edition is available for inspection at the Okemos office of the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety or from International Code Council, 5203 Leesburg Pike, Suite 708, Falls Church, VA 22041 at a cost as of the time of adoption of these rules of \$42.00.

History: 2002 MR 19, Eff. Oct. 31, 2002; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30552**

**Source:** 2002 AACS.

**R 408.30553**

**Source:** 2002 AACS.

**R 408.30554**

**Source:** 2002 AACS.

**R 408.30555 Rescinded.**

History: 2002 MR 19, Eff. Oct. 31, 2002; rescinded 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30556**

**Source:** 2002 AACS.

**R 408.30557**

**Source:** 2002 AACS.

**R 408.30558 Preliminary meeting.**

Rule 558. Section 104.2.1 of the code is amended as follows:

104.2.1 Preliminary meeting. When requested by the owner or owner's agent, the building official shall meet with the owner or the owner's agent to discuss plans for the proposed work or change of occupancy before the application for a construction permit in order to establish the specific applicability of the provisions of this code. The building official shall notify the appropriate fire official of the meeting.

Exception: Repairs, and alterations level 1.

History: 2002 MR 19, Eff. Oct. 31, 2002; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30559 Preliminary review.**

Rule 559. Section 104.2.2 is added to the code to read as follows:

104.2.2 Preliminary review. When a building permit is required by the code, the owner or owner's agent may request a review of preliminary construction documents to determine compliance with this code.

History: 2002 MR 19, Eff. Oct. 31, 2002; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30560 Annual permit.**

Rule 560. Sections 105.1.1 and 105.1.2 of the code are amended as follows:

105.1.1 Annual permit. In place of an individual permit for each alteration to an already approved electrical, gas, mechanical, or plumbing installation, the enforcing agency is authorized to issue an annual permit upon application therefor to any person, firm, or corporation. The applicant shall be licensed in accordance with the requirements of 1956 PA 217, MCL 338.881 et seq., 1984 PA 192, MCL 338.971 et seq., or 2002 PA 733, MCL 338.3511 et seq.

105.1.2 Annual permit records. The person to whom an annual permit is issued shall keep a detailed record of alterations made under an annual permit. Access to the records shall be provided at all times and the records shall be filed with the enforcing agency.

History: 2002 MR 19, Eff. Oct. 31, 2002; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30561**

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**Source:** 2002 AACS.

**R 408.30562**

**Source:** 2002 AACS.

**R 408.30563 Fire flow requirements.**

Rule 563. Section 106.1.1.2 is added to the code to read as follows:

106.1.1.2 Fire flow requirements. The application for permit shall be accompanied by an evaluation of the available fire flow at the building utilizing the existing fire hydrants on the site, public streets, and adjacent sites in accordance with the provisions of section B105 of appendix b of the international fire code.

History: 2002 MR 19, Eff. Oct. 31, 2002; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30564**

**Source:** 2002 AACS.

**R 408.30565**

**Source:** 2002 AACS.

**R 408.30566 Rescinded.**

History: 2002 MR 19, Eff. Oct. 31, 2002; rescinded 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30567 Rescinded.**

History: 2002 MR 19, Eff. Oct. 31, 2002; rescinded 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30568**

**Source:** 2002 AACS.

**R 408.30569**

**Source:** 2002 AACS.

**R 408.30570**

**Source:** 2002 AACS.

**R 408.30571**

**Source:** 2002 AACS.

**R 408.30572**

**Source:** 2002 AACS.

**R 408.30573**

**Source:** 2002 AACS.

**R 408.30574**

**Source:** 2002 AACS.

**R 408.30575**

**Source:** 2002 AACS.

**R 408.30576 Accessibility requirements.**

Rule 576. Sections 806.1, 812.5, and 1004.1 of the code are amended as follows:

806.1 General. Accessibility in portions of buildings undergoing a change of occupancy classification shall comply with the provisions of R 408.30574.

812.5 Accessibility. Existing buildings or portions thereof that undergo a change of occupancy shall comply with the provisions of R 408.30574.

1004.1 Accessibility requirements. The provisions of R 408.30574 shall apply to buildings and facilities designated as historical structures that undergo a change of occupancy.

History: 2002 MR 19, Eff. Oct. 31, 2002; 2003 MR 22, Eff. Dec. 31, 2003.

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**R 408.30577**  
Source: 2002 AACS.

**PART 6. MOBILE HOME CODE**

**R 408.30601**  
Source: 1998-2000 AACS.

**R 408.30611**  
Source: 1998-2000 AACS.

**R 408.30616**  
Source: 1998-2000 AACS.

**R 408.30621**  
Source: 1998-2000 AACS.

**R 408.30626**  
Source: 1998-2000 AACS.

**R 408.30631**  
Source: 1998-2000 AACS.

**R 408.30636**  
Source: 1998-2000 AACS.

**PART 7. PLUMBING CODE**

**AMENDMENTS AND ADDITIONS TO BASIC PLUMBING CODE**

**R 408.30701 Applicable code.**

Rule 701. Rules governing the installation, replacement, alteration, relocation, and use of plumbing systems or plumbing materials shall be those contained in the international plumbing code, 2003 edition, including appendices B, C, D, F, and G, except for sections 103.2, , 103.4, 104.2, 106.6.1, 106.6.2, 106.6.3, 107.1.2, 107.1.2.1, 107.1.2.2, 107.1.2.3, 109.2 to 109.7, 312.1.1, 602.3 to 602.3.5.1, 604.11, 608.17 to 608.17.8, 708.3.2, 708.3.6, 1106.6, and table 1106.6. With the exceptions noted, the code is adopted in these rules by reference. All references to the International Building Code, International Residential Code, International Energy Conservation Code, International Electrical Code, International Mechanical Code, and International Plumbing Code mean the Michigan Building Code, Michigan Residential Code, Michigan Uniform Energy Code, Michigan Electrical Code, Michigan Mechanical Code, and Michigan Plumbing Code respectively. The code is available for inspection at the Okemos office of the Michigan department of consumer and industry services, bureau of construction codes and fire safety. The code may be purchased from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, or from the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, at a cost as of the time of adoption of these rules of \$45.00 each.

History: 1954 ACS 81, Eff. May 19, 1975; 1954 ACS 91, Eff. June 16, 1977; 1979 AC; 1979 ACS 3, Eff. July 26, 1980; 1979 ACS 10, Eff. Apr. 27, 1982; 1985 MR 3, Eff. Apr. 3, 1985; 1989 MR 2, Eff. Feb. 28, 1989; 1992 MR 3, Eff. Apr. 2, 1992; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**AMENDMENTS AND ADDITIONS TO BASIC PLUMBING CODE**

**R 408.30711**  
Source: 2001 AACS.

**R 408.30712**  
Source: 2001 AACS.

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**R 408.30713**

Source: 2001 AACs.

**R 408.30714**

Source: 2001 AACs.

**R 408.30715 Permits.**

Rule 715. Sections 106.4, 106.5.3, and 106.5.4 of the code are amended to read as follows:

106.4. By whom application is made. Application for a permit shall be made by a plumbing contractor licensed in accordance with 2002 PA 733, MCL 338.3511 et seq.

Exceptions:

1. Water service permits.
2. Building sewer and private sewer permits.
3. Minor repair.

106.5.3. Expiration. Each permit issued by the code official under the provisions of the code shall expire by limitation and become null and void if the work authorized by such permit is not commenced within 180 days from the date of such permit, or if the work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of 180 days. Before such work may be recommenced, a new permit shall be first obtained for such work, provided no changes have been made or will be made in the original construction document for such work and provided further that such suspension or abandonment has not exceeded 1 year.

106.5.4. Extensions. Any permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit when work is unable to be commenced within the time required by this section for good and satisfactory reasons. The code official shall extend the time for action by the permittee for a period not exceeding 180 days if there is reasonable cause. No permit shall be extended more than once.

History: 1954 ACS 91, Eff. June 16, 1977; 1979 AC; 1979 ACS 10, Eff. Apr. 27, 1982; 1985 MR 3, Eff. Apr. 3, 1985; 1992 MR 3, Eff. Apr. 2, 1992; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30716 Fees.**

Rule 716. Section 106.6 of the code is amended to read as follows:

Rule 106.6. Fees. The fees prescribed by section 22 of 1972 PA 230, MCL 125.1522 shall be paid to the enforcing agency of the jurisdiction before a permit to begin work for new construction, alteration, removal, demolition, or other building operation may be issued. In addition, an amendment to a permit necessitating an additional fee shall not be approved until the additional fee is paid.

History: 1979 ACS 10, Eff. Apr. 27, 1982; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30717 Duties and powers of the code official.**

Rule 717. Sections 104.1 and 104.5 of the code are amended to read as follows:

104.1 General. The code official shall enforce all of the provisions of the code and shall act on any question relative to the installation, alternation, repair, maintenance, or operation of all plumbing systems, devices, and equipment except as specifically provided for by statutory requirements or as provided for in sections 104.3 through 104.8.

104.5. Right of entry. In the discharge of duties, the code official may enter any building, structure, or premises in the jurisdiction to enforce the provisions of the act and the code under section 12 of 1972 PA 230, MCL 125.1512.

History: 1979 ACS 10, Eff. Apr. 27, 1982; 1985 MR 3, Eff. Apr. 3, 1985; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003. Editor's Note: An obvious error in R 408.30717 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in Michigan Register, 2003 MR 22. The memorandum requesting the correction was published in Michigan Register, 2004 MR 1.

**R 408.30718 Violation penalties.**

Rule 718. Section 108.4 of the code is amended to read as follows:

108.4. Violation penalties. A person who violates a provision of the code, who fails to conform with any of the requirements thereof, or who erects, installs, alters, or repairs plumbing work in violation of the approved construction documents or directive of the enforcing agency, or a permit or certificate issued under the provisions of the code shall be assessed a fine in accordance with section 23 of 1972 PA 230, MCL 125.1523 and 2002 PA 733, MCL 338.3511 et seq.

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History: 1979 ACS 10, Eff. Apr. 27, 1982; 1985 MR 3, Eff. Apr. 3, 1985; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30719 Stop work orders.**

Rule 719. Section 108.5 of the code is amended to read as follows:

108.5. Stop work orders. Upon notice from the enforcing agency of work on any plumbing system that is being done contrary to the provisions of the code or in a dangerous or unsafe manner, the work shall immediately cease. Notice shall be in accordance with section 12 of 1972 PA 230, MCL 125.1512. A person who is served with a stop work order, except for work that the person is directed to perform to remove a violation or unsafe condition is subject to the penalty provisions prescribed by section 23 of 1972 PA 230, MCL 125.1523.

History: 1979 ACS 10, Eff. Apr. 27, 1982; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30720 Means of appeal.**

Rule 720. Section 109.1 of the code is amended to read as follows:

109.1 Means of appeal. A person has the right to appeal a decision of the enforcing agency to the board of appeals. An application for appeal shall be based on a claim that the true intent of the code or the rules governing construction have been incorrectly interpreted, the provisions of the code do not apply, or an equal or better form of construction is proposed. The application shall be filed in accordance with section 14 of 1972 PA 230, MCL 125.1514.

History: 1979 ACS 10, Eff. Apr. 27, 1982; 1985 MR 3, Eff. Apr. 3, 1985; 1989 MR 2, Eff. Feb. 28, 1989; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30721 Required tests.**

Rule 721. Section 312.1 of the code is amended to read as follows:

312.1. Required tests. The permit holder shall make the applicable tests prescribed in sections 312.2 to 312.9 to determine compliance with the provisions of the code. The permit holder shall give reasonable advance notice to the code official when the plumbing work is ready for tests. The equipment, material, power, and labor necessary for the inspection and test shall be furnished by the permit holder and the permit holder shall be responsible for determining that the work will withstand the test pressure prescribed in this rule. All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to final tests. The code official shall require the removal of any cleanouts if necessary to ascertain if the pressure has reached all parts of the system.

Exception: Drainage and vent low pressure air tests for plastic piping systems shall be acceptable as prescribed in section 312.3 of the code.

History: 1954 ACS 81, Eff. May 19, 1975; rescinded 1954 ACS 91, Eff. June 16, 1977; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30722 Separate facilities.**

Rule 722. Section 403.2 of the code is amended to read as follows:

403.2. Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for private facilities.
2. Separate employee facilities shall not be required in occupancies in which 15 or fewer people are employed.
3. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or fewer.

History: 1954 ACS 81, Eff. May 19, 1975; 1954 ACS 91, Eff. June 16, 1977; 1979 AC; rescinded 1979 ACS 10, Eff. Apr. 27, 1982; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30723 Shower Valves**

Rule 723. Section 424.3 of the code is amended to read as follows:

424.3. Shower valves. Shower and tub-shower combination valves shall be balanced pressure, thermostatic or combination balanced-pressure/thermostatic valves that conform to the requirements of ASSE 1016 or CAS B125. Valves shall be equipped with a means to limit the maximum setting of the valve to 120°F (49°C), which shall be field adjusted in accordance with the manufacturer's instructions.

The ASSE 1016 standard which is adopted by reference in these rules is available for inspection at the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, or from the American Society of Sanitary Engineering, 901 Canterbury Road, Suite A, Westlake, Ohio

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44145, at a cost as of the time of adoption of these amendatory rules of \$40.00. The CSA B125 which is adopted by reference in these rules is available for inspection at the Michigan Department of Consumer and Industry Services or from the Canadian Standards Association 5060 Spectrum Way, Mississauga, Ontario, Canada L4W 5N6 at a cost as of the time of adoption of these amendatory rules of \$68.00.

History: 1954 ACS 81, Eff. May 19, 1975; 1954 ACS 91, Eff. June 16, 1977; 1979 AC; rescinded 1979 ACS 10, Eff. Apr. 27, 1982; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30724**

Source: 1998-2000 AACS.

**R 408.30725**

Source: 1998-2000 AACS.

**R 408.30725a**

Source: 1998-2000 AACS.

**R 408.30725b**

Source: 1998-2000 AACS.

**R 408.30725c**

Source: 1998-2000 AACS.

**R 408.30726**

Source: 1998-2000 AACS.

**R 408.30728**

Source: 2001 AACS.

**R 408.30730 Sewer required.**

Rule 730. Section 701.2 of the code is amended to read as follows:

701.2. Every building in which plumbing fixtures are installed and all premises having drainage piping shall be connected to a public sewer, where available, or an approved private sewage disposal system.

History: 1989 MR 2, Eff. Feb. 28, 1989; rescinded 1992 MR 3, Eff. Apr. 2, 1992; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30731**

Source: 1997 AACS.

**R 408.30732**

Source: 1997 AACS.

**R 408.30733**

Source: 1997 AACS.

**R 408.30734**

Source: 1998-2000 AACS.

**R 408.30735**

Source: 2001 AACS.

**R 408.30736**

Source: 1997 AACS.

**R 408.30737**

Source: 1998-2000 AACS.

**R 408.30738**

Source: 1997 AACS.

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**R 408.30738a**

Source: 1998-2000 AACS.

**R 408.30739**

Source: 1997 AACS.

**R 408.30740**

Source: 1998-2000 AACS.

**R 408.30740a Rescinded.**

History: 1989 MR 2, Eff. Feb. 28, 1989; 1992 MR 3, Eff. Apr. 2, 1992; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; rescinded 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30740b**

Source: 1998-2000 AACS.

**R 408.30740c**

Source: 2001 AACS.

**R 408.30741**

Source: 1997 AACS.

**R 408.30741a**

Source: 1997 AACS.

**R 408.30741b**

Source: 1997 AACS.

**R 408.30741c Beverage dispensers.**

Rule 741c. Section 608.16.4 of the code is amended to read as follows:

608.16.4 Connections to automatic fire sprinkler systems and standpipe systems. The potable water supply to automatic fire sprinkler systems and standpipe systems shall be protected against backflow by a double check-valve assembly or a reduced pressure principle backflow preventer.

Exception: Isolation of the water distribution system is not required for deluge, preaction, or dry pipe systems.

History: 1954 ACS 91, Eff. June 16, 1977; 1979 AC; 1985 MR 3, Eff. Apr. 3, 1985; 1989 MR 2, Eff. Feb. 28, 1989; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30742,**

Source: 1997 AACS.

**R 408.30743**

Source: 1997 AACS.

**R 408.30743a**

Source: 1998-2000 AACS.

**R 408.30743b**

Source: 1997 AACS.

**R 408.30743c**

Source: 1998-2000 AACS.

**R 408.30744**

Source: 1997 AACS.

**R 408.30744a**

Source: 1998-2000 AACS.



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**R 408.30744b**

Source: 1998-2000 AACS.

**R 408.30744c**

Source: 1998-2000 AACS.

**R 408.30744d**

Source: 1998-2000 AACS.

**R 408.30744e Rescinded.**

History: 1992 MR 3, Eff. Apr. 2, 1992; 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; rescinded 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30744f**

Source: 1998-2000 AACS.

**R 408.30745**

Source: 1997 AACS.

**R 408.30745a**

Source: 1997 AACS.

**R 408.30745b**

Source: 1997 AACS.

**R 408.30746**

Source: 1998-2000 AACS.

**R 408.30746a**

Source: 1997 AACS.

**R 408.30746b**

Source: 1997 AACS.

**R 408.30747**

Source: 1997 AACS.

**R 408.30747a**

Source: 1998-2000 AACS.

**R 408.30747b**

Source: 1998-2000 AACS.

**R 408.30747c**

Source: 1997 AACS.

**R 408.30748**

Source: 1998-2000 AACS.

**R 408.30748a**

Source: 1997 AACS.

**R 408.30748b**

Source: 1997 AACS.

**R 408.30748c**

Source: 1997 AACS.

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- R 408.30749**  
Source: 2001 AACS.
- R 408.30749a**  
Source: 1998-2000 AACS.
- R 408.30750**  
Source: 1998-2000 AACS.
- R 408.30751**  
Source: 1997 AACS.
- R 408.30751a**  
Source: 1998-2000 AACS.
- R 408.30752**  
Source: 1997 AACS.
- R 408.30752a**  
Source: 1997 AACS.
- R 408.30753a**  
Source: 1998-2000 AACS.
- R 408.30754**  
Source: 1997 AACS.
- R 408.30754a**  
Source: 1997 AACS.
- R 408.30754b**  
Source: 2001 AACS.
- R 408.30754c**  
Source: 1998-2000 AACS.
- R 408.30755**  
Source: 1997 AACS.
- R 408.30756**  
Source: 1998-2000 AACS.
- R 408.30756a**  
Source: 1998-2000 AACS.
- R 408.30757**  
Source: 2001 AACS.
- R 408.30758**  
Source: 2001 AACS.
- R 408.30758a**  
Source: 1997 AACS.
- R 408.30758b**  
Source: 1997 AACS.
- R 408.30758c**  
Source: 1997 AACS.

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- R 408.30758d**  
Source: 1997 AACS.
- R 408.30759**  
Source: 1998-2000 AACS.
- R 408.30759a**  
Source: 2001 AACS.
- R 408.30759b**  
Source: 2001 AACS.
- R 408.30760**  
Source: 2001 AACS.
- R 408.30761**  
Source: 1998-2000 AACS.
- R 408.30761a**  
Source: 1998-2000 AACS.
- R 408.30761b**  
Source: 1998-2000 AACS.
- R 408.30761c**  
Source: 2001 AACS.
- R 408.30762**  
Source: 1998-2000 AACS.
- R 408.30763**  
Source: 1998-2000 AACS.
- R 408.30763a**  
Source: 1998-2000 AACS.
- R 408.30763b**  
Source: 1998-2000 AACS.
- R 408.30763c**  
Source: 1998-2000 AACS.
- R 408.30764**  
Source: 1997 AACS.
- R 408.30765**  
Source: 1997 AACS.
- R 408.30765a**  
Source: 1997 AACS.
- R 408.30765b**  
Source: 1997 AACS.
- R 408.30765c**  
Source: 1997 AACS.
- R 408.30765d**

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**Source:** 1997 AACS.

**R 408.30765e**

**Source:** 1997 AACS.

**R 408.30766**

**Source:** 1997 AACS.

**R 408.30766a**

**Source:** 1997 AACS.

**R 408.30766b**

**Source:** 1997 AACS.

**R 408.30766c**

**Source:** 1997 AACS.

**R 408.30766d**

**Source:** 1997 AACS.

**R 408.30767**

**Source:** 1997 AACS.

**R 408.30767a**

**Source:** 1997 AACS.

**R 408.30768**

**Source:** 1997 AACS.

**R 408.30768a**

**Source:** 1997 AACS.

**R 408.30768b**

**Source:** 1997 AACS.

**R 408.30769**

**Source:** 1997 AACS.

**R 408.30769a**

**Source:** 1997 AACS.

**R 408.30769b**

**Source:** 1997 AACS.

**R 408.30769c**

**Source:** 1997 AACS.

**R 408.30770**

**Source:** 1997 AACS.

**R 408.30770a**

**Source:** 1997 AACS.

**R 408.30770b**

**Source:** 1997 AACS.

**R 408.30771**

**Source:** 1997 AACS.

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**R 408.30771a**  
Source: 1997 AACs.

**R 408.30771b**  
Source: 1997 AACs.

**R 408.30771c**  
Source: 1997 AACs.

**R 408.30771d**  
Source: 1997 AACs.

**R 408.30771e**  
Source: 1997 AACs.

**R 408.30772**  
Source: 1997 AACs.

**R 408.30772a**  
Source: 1997 AACs.

**R 408.30772b**  
Source: 1997 AACs.

**R 408.30772c**  
Source: 1997 AACs.

**R 408.30772d**  
Source: 1997 AACs.

**R 408.30772e**  
Source: 1997 AACs.

**R 408.30773**  
Source: 1997 AACs.

**R 408.30773a**  
Source: 1997 AACs.

**R 408.30773b**  
Source: 1997 AACs.

**R 408.30773c**  
Source: 1997 AACs.

**R 408.30773d**  
Source: 1997 AACs.

**R 408.30774**  
Source: 1997 AACs.

**R 408.30774a**  
Source: 1997 AACs.

**R 408.30774b**  
Source: 1997 AACs.

**R 408.30774c**  
Source: 1997 AACs.

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**R 408.30774d**  
Source: 1997 AACS.

**R 408.30774e**  
Source: 1997 AACS.

**R 408.30774f**  
Source: 1997 AACS.

**R 408.30775**  
Source: 1997 AACS.

**R 408.30775a**  
Source: 1997 AACS.

**R 408.30775b**  
Source: 1997 AACS.

**R 408.30775c**  
Source: 1997 AACS.

**R 408.30775d**  
Source: 1997 AACS.

**R 408.30776**  
Source: 1997 AACS.

**R 408.30776a**  
Source: 1997 AACS.

**R 408.30776b**  
Source: 1997 AACS.

**R 408.30776c**  
Source: 1997 AACS.

**R 408.30777 Scope; water service; distance limits; method of installations.**

Rule 777. Section 601.1 of the code is amended to read as follows:

601.1. Scope. The provisions of this article shall control the design and installation of water supply systems, both hot and cold. Refer to 1976 PA 399, MCL 325.1001 et seq., for additional requirements on water supply systems pertaining to establishments that are subject to regulation or licensure, or both, by the department of environmental quality.

Compliance with the provisions of this article, however, does not relieve any person from complying with the additional requirements imposed upon water supply systems pursuant to authority vested in the Michigan department of environmental quality under 1976 PA 399, MCL 325.1001 et seq., 1976 PA 368, MCL 333.1101 et seq., and 1987 PA 96, MCL 125.2301 et seq., or other applicable provisions of state law.

History: 1954 ACS 91, Eff. June 16, 1977; 1979 AC; 1979 ACS 3, Eff. July 26, 1980; 1979 ACS 10, Eff. Apr. 10, 1982; 1985 MR 3, Eff. Apr. 3, 1985; 1989 MR 2, Eff. Feb. 28, 1989; 1999 MR 2, Eff. Mar. 1, 1999; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30777a**  
Source: 1998-2000 AACS.

**R 408.30777b**  
Source: 1997 AACS.

**R 408.30777c**  
Source: 1998-2000 AACS.

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**R 408.30777d**  
Source: 1998-2000 AACS.

**R 408.30777e**  
Source: 1998-2000 AACS.

**R 408.30778**  
Source: 1998-2000 AACS.

**R 408.30778a**  
Source: 1998-2000 AACS.

**R 408.30778b**  
Source: 1998-2000 AACS.

**R 408.30778c**  
Source: 1998-2000 AACS.

**R 408.30779**  
Source: 1998-2000 AACS.

**R 408.30779a**  
Source: 1998-2000 AACS.

**R 408.30779b**  
Source: 1998-2000 AACS.

**R 408.30780**  
Source: 1998-2000 AACS.

**R 408.30780a**  
Source: 1998-2000 AACS.

**R 408.30780b**  
Source: 1998-2000 AACS.

**R 408.30780c**  
Source: 1997 AACS.

**R 408.30781**  
Source: 1997 AACS.

**R 408.30782**  
Source: 1997 AACS.

**R 408.30783**  
Source: 1997 AACS.

**R 408.30784**  
Source: 1997 AACS.

**R 408.30785**  
Source: 2001 AACS.

**R 408.30786 Sizing of secondary drains.**

Rule 786. Section 1107.3 of the code is amended to read as follows: 1107.3. Sizing of secondary drains. Secondary, or emergency, roof drain systems shall be sized in accordance with section 1106 based on the rainfall rate for which the primary system is sized in tables 1106.2 and 1106.3. Scuppers shall be sized to prevent the depth of ponding water from exceeding

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that for which the roof was designed as determined by section 1101.7. Scuppers shall not have an opening dimension of less than 4 inches (102 mm). The flow through the primary system shall not be considered when sizing the secondary roof drain system.

History: 1999 MR 2, Eff. Mar. 1, 1999; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30788**

**Source:** 1998-2000 AACS.

**R 408.30788a**

**Source:** 1997 AACS.

**R 408.30791 Definitions.**

Rule 791. Section 202 of the code is amended to amend the definition of code official and add the definition of plumbing contractor.

"Code official" means the person appointed and employed by a governmental subdivision charged with the administration and enforcement of the state code or codes and registered in accordance with the requirements of 1986 PA 54, MCL 338.2301 et seq.

"Plumbing contractor" means a person who is licensed in accordance with 2002 PA 733, MCL 338.3511 et seq.

History: 1954 ACS 81, Eff. May 19, 1975; 1954 ACS 91, Eff. June 16, 1977; 1979 AC; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30792 Plumbing contractor.**

Rule 792. (1) To obtain plumbing permits, an applicant shall do all of the following:

- (a) Be a plumbing contractor in this state.
  - (b) Be active in the business of serving the public as a plumbing contractor in a county, city, village, or township in this state.
  - (c) Operate 1 or more branches in this state bearing the same firm name, when a licensed master plumber is in charge and has the responsibility of supervision at each branch. The names of the authorized master plumbers representing a firm shall be on record with the state plumbing board.
- (2) To become a plumbing contractor, an application shall be made on a form furnished by the state plumbing board and filed with the board at Okemos, Michigan. An incomplete application will be returned to the applicant.

History: 1954 ACS 81, Eff. May 20, 1975; 1954 ACS 91, Eff. June 16, 1977; 1979 AC; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30793**

**Source:** 2001 AACS.

**R 408.30795**

**Source:** 2001 AACS.

**R 408.30795a**

**Source:** 2001 AACS.

**R 408.30796**

**Source:** 2001 AACS.

**PART 8. ELECTRICAL CODE**

**R 408.30801**

**Source:** 1998-2000 AACS.

**R 408.30806**

**Source:** 1997 AACS.

**AMENDMENTS AND ADDITIONS TO ELECTRICAL CODE**

**R 408.30810**

**Source:** 1997 AACS.



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- R 408.30812**  
Source: 1997 AACS.
- R 408.30815**  
Source: 1981 AACS.
- R 408.30816**  
Source: 1981 AACS.
- R 408.30817**  
Source: 1998-2000 AACS.
- R 408.30818**  
Source: 1998-2000 AACS.
- R 408.30819**  
Source: 1998-2000 AACS.
- R 408.30820**  
Source: 1998-2000 AACS.
- R 408.30821**  
Source: 1997 AACS.
- R 408.30822**  
Source: 1998-2000 AACS.
- R 408.30823**  
Source: 1997 AACS.
- R 408.30824**  
Source: 1981 AACS.
- R 408.30825**  
Source: 1998-2000 AACS.
- R 408.30826**  
Source: 1998-2000 AACS.
- R 408.30827**  
Source: 1998-2000 AACS.
- R 408.30830**  
Source: 1998-2000 AACS.
- R 408.30831**  
Source: 1998-2000 AACS.
- R 408.30832**  
Source: 1997 AACS.
- R 408.30835**  
Source: 1998-2000 AACS.
- R 408.30837**  
Source: 1998-2000 AACS.
- R 408.30838**  
Source: 1997 AACS.

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**R 408.30839**

**Source:** 1998-2000 AACS.

**R 408.30843**

**Source:** 1998-2000 AACS.

**R 408.30865**

**Source:** 1997 AACS.

**R 408.30866**

**Source:** 1998-2000 AACS.

**R 408.30867**

**Source:** 1998-2000 AACS.

**R 408.30868**

**Source:** 1998-2000 AACS.

**R 408.30869**

**Source:** 1998-2000 AACS.

**R 408.30870**

**Source:** 1997 AACS.

**R 408.30871**

**Source:** 1995 AACS.

**R 408.30872**

**Source:** 1997 AACS.

**R 408.30873**

**Source:** 1998-2000 AACS.

**R 408.30880**

**Source:** 1997 AACS.

**PART 9. MECHANICAL CODE**

**R 408.30901**

**Source:** 1997 AACS.

**PART 9A. MECHANICAL CODE**

**R 408.30901a Adoption by reference of international mechanical code.**

Rule 901a. The provisions of the international mechanical code, 2003 edition, except for sections 103.2, 103.4, 104.2, 106.5.1 to 106.5.3, 107.1.2 to 107.1.2.3, 109.2 to 109.7 and appendix B govern the construction, alteration, relocation, demolition, use and occupancy of buildings and structures. With the exceptions noted, the code is adopted in these rules by reference. All references to the International Building Code, International Residential Code, International Energy Conservation Code, International Electrical Code, International Mechanical Code, and International Plumbing Code mean the Michigan Building Code, Michigan Residential Code, Michigan Uniform Energy Code, Michigan Electrical Code, Michigan Mechanical Code, and Michigan Plumbing Code respectively. The code is available for inspection at the Okemos office of the Michigan department of consumer and industry services, bureau of construction codes and fire safety. The code may be purchased from the International Code Council, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041, or from the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan 48864, at a cost as of the time of adoption of these rules of \$45.00 each.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1992 MR 10, Eff. Nov. 7, 1992; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff.

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Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**AMENDMENTS AND ADDITIONS TO BASIC MECHANICAL CODE**

**R 408.30902a Licensing requirements.**

Rule 902a. Section 101.2 of the code is amended to read as follows:

101.2. Scope. This code regulates the design, installation, maintenance, alteration, and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions and related processes within buildings. This code shall also regulate the mechanical systems, system components, equipment, and appliances specifically addressed in this code.

Exceptions:

1. Mechanical systems within 1- and 2-family dwellings shall be constructed and maintained in accordance with the Michigan residential code for 1- and 2-family dwellings.
2. Mechanical systems in existing buildings undergoing repair, alterations, or additions, and change of occupancy shall be permitted to comply with the Michigan rehabilitation code for existing buildings.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1992 MR 10, Eff. Nov. 7, 1992; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30903a**

**Source:** 2001 AACCS.

**R 408.30904a**

**Source:** 2001 AACCS.

**R 408.30905a**

**Source:** 2001 AACCS.

**R 408.30906a Work permit; submitting plans and specifications to authority.**

Rule 906a. Sections 106.1, 106.2, 106.3, 106.4, 106.4.3 and 106.4.4 of the code are amended to read as follows:

106.1. Permits required. A contractor licensed pursuant to 1984 PA 192, MCL 338.971 et seq. who desires to erect, install, enlarge, alter, repair, remove, convert, or replace a mechanical system, the installation of which is regulated by this code, or to cause such work to be done, shall first make application in accordance with the requirements of section 10 of 1972 PA 230, MCL 125.1510.

Exception: A person who holds a valid boiler installer license issued under 1965 PA 290, MCL 408.751 et seq. shall secure a permit for the installation of a steam or hot water boiler which carries a pressure of not more than 15 psig for steam and 160 degrees Fahrenheit for hot water, and which is located in a private residence or in an apartment building having 5 or less dwelling units.

106.2. Permits not required. A person is not required to obtain a permit to perform mechanical work on any of the following items:

- (a) A portable heating or gas appliance.
- (b) Portable ventilation equipment.
- (c) A portable cooling unit.
- (d) A minor part that is replaced if the replacement does not affect equipment approval or make it unsafe.
- (e) A portable evaporative cooler.
- (f) Self-contained refrigeration equipment and a window-type air conditioner that is not more than 1.5 horsepower.
- (g) A boiler or pressure vessel for which a permit is required by sections 17 and 18 of 1965 PA 290, MCL 408.767 and 408.768.
- (h) An oil burner that does not require connection to a flue, such as an oil stove and a heater equipped with a wick.
- (i) A portable gas burner that has inputs of less than 30,000 Btu's per hour.
- (j) Gas piping limited to 10 feet in length and not more than 6 fittings.

106.3 Application for permit. Each application for a permit with the required fee, shall be filed with the code official on a form furnished for that purpose and shall contain a general description of the proposed work and its location. The contractor who is performing the work shall sign the application. The permit application shall indicate the proposed occupancy of all parts of the building and of that portion of the site or lot, if any, not covered by the building or structure and shall contain the information required by section 10 of 1972 PA 230, MCL 125.1510.

106.4. Permit issuance. The enforcing agency shall review the application, construction documents, and other data filed by

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an applicant for permit in accordance with 1972 PA 230, MCL 125.1501 et seq. If the enforcing agency finds that the proposed work conforms to the requirements of the act, the code, and all other applicable laws and ordinances thereto, and that all fees prescribed by the act have been paid, then the enforcing agency shall issue a permit to the applicant.

106.4.3. Expiration. Each permit issued by the code official under the provisions of the code shall expire by limitation and become null and void if the work authorized by the permit is not begun within 180 days from the date of the permit, or if the work authorized by such permit is suspended or abandoned at any time after the work is begun for a period of 180 days. Before work is recommenced, a new permit shall be first obtained, provided no changes have been made or will be made in the original construction document and that suspension or abandonment has not exceeded 1 year.

106.4.4. Extensions. A permittee holding an unexpired permit may apply for an extension of the time within which the permittee may begin work under that permit if good and satisfactory reasons. The code official shall extend the time for action by the permittee for a period not exceeding 180 days if there is reasonable cause. No permit shall be extended more than once.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30907a Fees.**

Rule 907a. Section 106.5 of the code is amended to read as follows:

106.5. Fees. The fees prescribed by section 22 of 1972 PA 230, MCL 125.1522, shall be paid to the enforcing agency of the jurisdiction before a permit to begin work for new construction, alteration, removal, demolition, or other building operation may be issued. In addition, an amendment to a permit necessitating an additional fee shall not be approved until the additional fee is paid.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30908a Means of appeal.**

Rule 908a. Section 109.1 of the code is amended to read as follows:

Means of appeal. A person may appeal a decision of the enforcing agency to the board of appeals. An application for appeal shall be based on a claim that the true intent of this code or the rules governing construction have been incorrectly interpreted, the provisions of the code do not apply, or an equal or better form of construction is proposed. The application shall be filed under section 14 of 1972 PA 230, MCL 125.1514.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1992 MR 10, Eff. Nov. 7, 1992; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30909a Violations.**

Rule 909a. Section 108.4 of the code is amended to read as follows:

108.4 Violation penalties. Any person who violates a provision of this code, who fails to conform with any of the requirements thereof, or who erects, installs, alters, or repairs mechanical work in violation of the approved construction documents or directive of the enforcing agency, or a permit or certificate issued under the provisions of this code, shall be fined in accordance with section 23 of 1972 PA 230, MCL 125.1523.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30910a Stop work orders.**

Rule 910a. Section 108.5 of the code is amended to read as follows:

108.5. Stop work orders. Upon notice from the enforcing agency that mechanical work is being done contrary to the provisions of this code or in a dangerous or unsafe manner, the work shall immediately cease. Notice shall be in accordance with section 12 of 1972 PA 230, MCL 125.1512. A person who is served with a stop work order, except for work that a person is directed to perform to remove a violation or unsafe condition, is subject to the penalty provisions prescribed by section 23 of 1972 PA 230, MCL 125.1523.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30912a**

**Source:** 1997 AACS.

**R 408.30915a**

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**Source:** 2001 AACS.

**R 408.30916a**

**Source:** 2001 AACS.

**R 408.30917a**

**Source:** 1998-2000 AACS.

**R 408.30918a Duct installation.**

Rule 918a. Section 603.15.1 is added to the code to read as follows:

603.15.1. Floor register location. Floor registers located in a room or space containing water closets shall be located a minimum of 3 feet from the water closet.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1992 MR 10, Eff. Nov. 7, 1992; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30919a**

**Source:** 1997 AACS.

**R 408.30920a**

**Source:** 1998-2000 AACS.

**R 408.30921a**

**Source:** 1997 AACS.

**R 408.30922a**

**Source:** 1998-2000 AACS.

**R 408.30923a Equipment installation.**

Rule 923a. Sections 301.7.1 and 301.16 are added to the code to read as follows:

301.7.1. Electrical disconnect. The mechanical contractor shall ensure that all equipment has an electrical disconnect switch on, or immediately adjacent to, the equipment.

301.16. Heating system. Each dwelling unit shall be provided with heating facilities capable of maintaining a minimum room temperature of 68 degrees Fahrenheit at a point 3 feet above the floor and 2 feet from exterior walls in all habitable rooms at the design temperature. The installation of 1 or more portable space heaters shall not be used to achieve compliance with this section.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1992 MR 10, Eff. Nov. 7, 1992; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30924a**

**Source:** 2001 AACS.

**R 408.30925a**

**Source:** 1998-2000 AACS.

**R 408.30926a**

**Source:** 1998-2000 AACS.

**R 408.30927a**

**Source:** 1995 AACS.

**R 408.30928a**

**Source:** 2001 AACS.

**R 408.30929a**

**Source:** 1998-2000 AACS.

**R 408.30930a**

**Source:** 1998-2000 AACS.

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**R 408.30931a**

**Source:** 1998-2000 AACs.

**R 408.30932a**

**Source:** 1998-2000 AACs.

**R 408.30933a**

**Source:** 1998-2000 AACs.

**R 408.30935a Ventilation requirements for commercial kitchens.**

Rule 935a Sections 506.1, 506.3.6, 507.1, 507.2.2, 507.9, 507.13.1, 507.13.2, 507.13.3, and 507.13.4 of the code are amended and sections 507.13.5 and 507.16.1.1 are added to the code to read as follows:

506.1. Ventilation requirements for commercial kitchens. Ventilation for commercial kitchens shall be in compliance with NFPA-96-2001, the standard of the national fire protection association listed in chapter 16.

506.3.6 Grease duct clearances. Grease duct systems and exhaust equipment serving a type I hood shall have clearances to combustibles as required by NFPA 96-2001, as listed in chapter 16.

Exception: Listed and labeled factory -built commercial kitchen grease ducts and exhaust equipment installed in accordance with section 304.1 of the code.

507.1 General. Commercial kitchen exhaust hoods shall comply with the requirements of this section and NFPA 96-2001, as listed in chapter 16. Hoods shall be type I or type II and shall be designed to capture and confine cooking vapors and residues.

Exceptions:

1. Factory-built commercial exhaust hoods which are tested in accordance with UL 710, as listed in chapter 16, listed, labeled, and installed in accordance with section 304.1 shall not be required to comply with sections 507.4, 507.7, 507.11, 507.12, 507.13, 507.14, and 507.15 of the code.

2. Factory-built commercial cooking recirculating systems which are tested in accordance with UL 197, as listed in chapter 16, listed, labeled, and installed in accordance with section 304.1 of the code shall not be required to comply with sections 507.4, 507.5, 507.7, 507.12, 507.13, 507.14, and 507.15 of the code.

3. Net exhaust volumes for hoods may be reduced during no-load cooking conditions, where engineered or listed multi-speed or variable-speed controls automatically operate the exhaust system to maintain capture and removal of cooking effluents as required.

507.2.2. Type II hoods. Type II hoods shall be installed where cooking or dishwashing appliances produce heat or steam and do not produce grease or smoke, such as steamers, kettles, pasta cookers, dishwashing machines, and ovens.

Exceptions:

1. Under-counter type commercial dishwashing machines.

2. A type II hood is not required for dishwashers and potwashers that are provided with heat and water vapor exhaust systems that are supplied by the appliance manufacturer and are installed in accordance with the manufacturer's instructions.

3. Ovens used for re-heating foods previously cooked.

507.9. Clearances for type I hood. A type I hood shall be installed with clearances from combustibles as required by NFPA 96-2001 as listed in chapter 16.

507.13.1. Extra-heavy-duty cooking appliances. The minimum net airflow for type I hoods used for extra-heavy-duty cooking appliances shall be determined as follows:

Type of hood	CFM per foot of open perimeter of hood
Wall mounted canopy	550
Single island canopy	700
Double island canopy (per side)	550
Backshelf/pass-over	not allowed
Eyebrow	not allowed

507.13.2. Heavy-duty cooking appliances. The minimum net airflow for type I hoods used for heavy-duty cooking appliances shall be determined as follows:

Type of hood	CFM per foot of open perimeter of hood
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Wall mounted canopy	400
Single island canopy	600
Double island canopy (per side)	400
Backshelf/pass-over	400
Eye brow	not allowed

507.13.3 Medium-duty cooking appliances. The minimum net airflow for type I hoods used for medium-duty cooking appliances shall be determined as follows:

Type of hood	CFM per foot of open perimeter of hood
Wall mounted canopy	300
Single island canopy	750
Double island canopy (per side)	300
Backshelf/pass-over	300
Eye brow	250

507.13.4. Light-duty cooking appliances. The minimum net airflow for type I hoods used for light duty cooking appliances and food service preparation and cooking operations approved for use under a type II hood shall be determined as follows:

Type of hood	CFM per foot of open perimeter of hood
Wall mounted canopy	200
Single island canopy	400
Double island canopy (per side)	250
Backshelf/pass-over	250
Eye brow	250

507.13.5. Dishwashing machines. Dishwashing machines shall be installed under a type II hood.

507.16.1.1 Smoke test. The field test identified in section 507.16.1 of the code shall be conducted in accordance with the smoke testing procedures established by the bureau of construction codes and fire safety, which are available at no cost from the bureau's web site at [www.michigan.gov/bccfs](http://www.michigan.gov/bccfs), or, from the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes and Fire Safety, 2501 Woodlake Circle, Okemos, Michigan, 48864.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1992 MR 10, Eff. Nov. 7, 1992; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30936a Scope of article.**

Rule 936a. Sections 1001.2 and 1004.4.3 are added to the code to read as follows:

1001.2. Boilers. In addition to the other provisions of the code, this article governs the installation, alteration, and repair of water heaters and boilers. The installation of boilers shall be in compliance with the provisions of this code and the Michigan boiler code.

1004.4.3. Working clearance. Clearance shall be maintained around boilers, generators, heaters, tanks, and related equipment and appliances so as to permit inspection, servicing, repair, replacement, and visibility of all gauges. When boilers are installed or replaced, clearances shall be provided to allow access for inspection, maintenance, and repair. Passageways around all sides of the boiler shall have an unobstructed width of not less than 24 inches (457 mm), unless otherwise approved.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1992 MR 10, Eff. Nov. 7, 1992; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30937a**

**Source:** 1998-2000 AACCS.

**R 408.30938a**

**Source:** 1997 AACCS.

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**R 408.30940a**  
Source: 2001 AACS.

**R 408.30941a**  
Source: 1998-2000 AACS.

**R 408.30942a**  
Source: 1997 AACS.

**R 408.30943a**  
Source: 1997 AACS.

**R 408.30944a**  
Source: 1998-2000 AACS.

**R 408.30945a Insulation.**

Rule 945a. Sections 604.3 and 1204.1 of the code are amended to read as follows:

604.3. Coverings and linings. Coverings and linings, including adhesives when used, shall have a flame spread index not more than 25 and a smoke-developed index not more than 50, when tested in accordance with ASTM E 84, using the specimen preparation and mounting procedures of ASTM E 2231. Duct coverings and linings shall not flame, glow, smolder, or smoke when tested in accordance with ASTM C 411 at the temperature to which they are exposed in service. The test temperature shall not fall below 250° F (121° C).

1204.1 Insulation characteristics. Pipe insulation installed in buildings shall conform to the requirements of the Michigan uniform energy code, shall be tested in accordance with ASTM E 84, using the specimen preparation and mounting procedures of ASTM E 2231 and shall have a maximum flame spread index of 25 and a smoke-developed index not exceeding 450. Insulation installed in an air plenum shall comply with section 602.2.1.

Exception: The maximum flame spread index and smoke-developed index shall not apply to 1- and 2-family dwellings.

History: 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30946a**  
Source: 1998-2000 AACS.

**R 408.30948a**  
Source: 1998-2000 AACS.

**R 408.30949a**  
Source: 1998-2000 AACS.

**R 408.30951a**  
Source: 1998-2000 AACS.

**R 408.30952a**  
Source: 1997 AACS.

**R 408.30953a**  
Source: 1998-2000 AACS.

**R 408.30954a**  
Source: 1998-2000 AACS.

**R 408.30955a**  
Source: 1997 AACS.

**R 408.30956a**  
Source: 1998-2000 AACS.

**R 408.30958a**  
Source: 1998-2000 AACS.



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**R 408.30960a**  
Source: 1997 AACS.

**R 408.30962a**  
Source: 1998-2000 AACS.

**R 408.30963a**  
Source: 1998-2000 AACS.

**R 408.30964a**  
Source: 1997 AACS.

**R 408.30965a**  
Source: 1998-2000 AACS.

**R 408.30966a**  
Source: 1997 AACS.

**R 408.30967a**  
Source: 1997 AACS.

**R 408.30968a**  
Source: 1997 AACS.

**R 408.30970a**  
Source: 1997 AACS.

**R 408.30971a**  
Source: 1997 AACS.

**R 408.30972a**  
Source: 1997 AACS.

**R 408.30975a**  
Source: 1998-2000 AACS.

**R 408.30977a**  
Source: 1997 AACS.

**R 408.30982a**  
Source: 1997 AACS.

**R 408.30983a**  
Source: 1998-2000 AACS.

**R 408.30984a**  
Source: 1998-2000 AACS.

**R 408.30987a**  
Source: 1998-2000 AACS.

**R 408.30989a**  
Source: 1997 AACS.

**R 408.30992a**  
Source: 1997 AACS.

**R 408.30995a** Automatic sprinkler systems generally.

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Rule 995a. Sections 1600.0, 1600.1, and 1600.2 are added to the code to read as follows:

1600.0. Automatic sprinkler systems; fire suppression systems.

1600.1 Scope. The provisions of this article provide the minimum requirements for the design and installation of automatic sprinkler systems in all occupancies, except for 1- and 2-family dwellings.

1600.2. Installations. Installations shall be in compliance with the provisions of the mechanical code. Fire suppression systems shall be in compliance with the provisions of the building code and shall be installed in accordance with the code and NFPA-13-1996, NFPA-13D-1996, NFPA-13R-1996, and NFPA-24-2002 installation of sprinkler systems, installation of sprinkler systems in 1- and 2-family dwellings and manufactured homes, and installation of sprinkler systems in residential occupancies up to 4 stories in height, standards of the national fire protection association listed in chapter 16.

History: 1989 MR 8, Eff. Aug. 23, 1989; 1992 MR 10, Eff. Nov. 7, 1992; 1995 MR 8, Eff. Sept. 6, 1995; 1998 MR 11, Eff. Nov. 30, 1998; 2001 MR 8, Eff. Jul. 31, 2001; 2003 MR 22, Eff. Dec. 31, 2003.

**R 408.30996**

Source: 1997 AACS.

**R 408.30997**

Source: 1997 AACS.

**R 408.30998**

Source: 1997 AACS.

**PART 10. ENERGY CONSERVATION IN NEW BUILDING DESIGN**

**R 408.31001**

Source: 1998-2000 AACS.

**R 408.31010**

Source: 1998-2000 AACS.

**R 408.31020**

Source: 1998-2000 AACS.

**R 408.31030**

Source: 1998-2000 AACS.

**R 408.31040**

Source: 1998-2000 AACS.

**R 408.31041**

Source: 1998-2000 AACS.

**R 408.31045**

Source: 1998-2000 AACS.

**R 408.31050**

Source: 1998-2000 AACS.

**R 408.31055**

Source: 1998-2000 AACS.

**DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES**

**BUREAU OF CONSTRUCTION CODES**

**GENERAL RULES**

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**PART 10. MICHIGAN UNIFORM ENERGY CODE**

**R 408.31061**

**Source:** 1998-2000 AACCS.

**R 408.31062**

**Source:** 1998-2000 AACCS.

**R 408.31063**

**Source:** 1998-2000 AACCS.

**R 408.31064**

**Source:** 1998-2000 AACCS.

**R 408.31065**

**Source:** 1998-2000 AACCS.

**R 408.31066**

**Source:** 1998-2000 AACCS.

**R 408.31070 Code title, intent, compliance, and exemption; adoption of standards by reference.**

Rule 1070. (1) These rules shall be known as the Michigan uniform energy code.

(2) The intent of the Michigan uniform energy code, referred to as "the code," is to provide cost-effective minimum energy conservation requirements when designing or building new residential buildings or structures. The code is not intended to be, nor shall it be construed as, the optimization of energy-conserving practices. The code provides flexibility to permit the use of innovative approaches and techniques to achieve the effective utilization of energy.

(3) Residential buildings shall be designed and constructed to comply with either the requirements of R 408.31073, R 408.31074 to R 408.31081, R 408.31082, and R 408.31083 or the requirements of R 408.31084, R 408.31085, and R 408.31086.

(4) Residential buildings that have more than 1 occupancy shall conform each portion of the building to the requirements for the occupancy within that portion. If minor accessory uses do not occupy more than 10% of the area of any floor of a building, then the major use shall be considered the building occupancy.

(5) Compliance with the code shall be achieved by either of the following methods which shall be at the sole discretion of the builder and shall be accepted by the building official:

(a) A prescriptive approach for insulating components as required in R 408.31073, R 408.31074 to R 408.31081, R 408.31082, and R 408.31083.

(b) A systems approach for the entire building performance as required in R 408.31084, R 408.31085, and R 408.31086.

(6) All of the following buildings are exempt from the code:

(a) A residential building or portion of a residential building that has an intended maximum rate of energy usage less than 3.4 Btu/h per square foot of floor area for all purposes.

(b) A residential building or portion of a residential building that is not heated or mechanically cooled.

(c) An existing building.

(d) An alteration of any existing residential building or structure or portion of a residential building.

(e) An addition to any existing residential building or structure.

(f) An existing residential building moved into or within the jurisdiction. A manufactured building that is shipped for initial installation or initial assembly and installation on a building site shall not be considered a moved structure.

(7) A building, other than a residential building, as defined in R 408.31064, shall be designed and constructed to comply with the requirements of the Michigan uniform energy code rules, part 10a.

History: 1999 MR 1, Eff. Mar. 31, 1999; 2003 MR 5, Eff. Mar. 13, 2003.

**R 408.31071**

**Source:** 1998-2000 AACCS.

**R 408.31072**

**Source:** 1998-2000 AACCS.

**R 408.31073**

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Source: 1998-2000 AACS.

**R 408.31074**

Source: 1998-2000 AACS.

**R 408.31075**

Source: 1998-2000 AACS.

**R 408.31076**

Source: 1998-2000 AACS.

**R 408.31077**

Source: 1998-2000 AACS.

**R 408.31078**

Source: 1998-2000 AACS.

**R 408.31079**

Source: 1998-2000 AACS.

**R 408.31080**

Source: 1998-2000 AACS.

**R 408.31081**

Source: 1998-2000 AACS.

**R 408.31082**

Source: 1998-2000 AACS.

**R 408.31083**

Source: 1998-2000 AACS.

**R 408.31084**

Source: 1998-2000 AACS.

**R 408.31085**

Source: 1998-2000 AACS.

**R 480.31086**

Source: 1998-2000 AACS.

**R 408.31087 Part 10a Michigan uniform energy code for buildings and structures, not including residential buildings; adoption by reference.**

Rule 1087. Rules governing the energy efficiency for the design and construction of buildings and structures, not including residential buildings, shall be those contained in the ASHRAE energy standard for buildings except low-rise residential buildings, ANSI/ASHRAE/IESNA standard 90.1-1999, including appendicies A, B, C, and D. With the exceptions noted, the standard is adopted in these rules by reference. The standard is available for inspection at the Okemos office of the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes. The standard may be purchased from the American Society of Heating, Refrigeration and Air-Conditioning Engineers, Inc., 1791 Tullie Circle, NE, Atlanta, Georgia 30329, or from the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes, 2501 Woodlake Circle, Okemos, Michigan 48864, at a cost as of the time of adoption of these rules of \$102.00 each.

History: 2003 MR 5, Eff. Mar. 13, 2003.

**R 408.31088 Definitions.**

Rule 1088. Section 3.2 of the standard is amended to read as follows:

3.2 Building official. "Building Official" means the person who is appointed and employed by a governmental subdivision charged with the administration and enforcement of the state code or codes and who is registered in accordance with the requirements of 1986 PA 54, MCL 338.2301 et seq. Residential. "Residential" means spaces in buildings used primarily for

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living and sleeping. Residential spaces include, but are not limited to, dwelling units, hotel/motel guest rooms, lodging houses, fraternity/sorority houses, and hostels.

History: 2003 MR 5, Eff. Mar. 13, 2003.

**R 408.31089 Heating, ventilating, and air-conditioning alternations.**

Rule 1089. Section 4.1.2.2.2 of the standard is amended to read as follows:

4.1.2.2.2 New HVAC equipment as a direct replacement of existing HVAC equipment shall comply with the specific minimum efficiency requirements applicable to that equipment including, but not limited to, air conditioners and condensing units, heat pumps, water chilling packages, packaged terminal and room air conditioners and heat pumps, furnaces, duct furnaces, unit heaters, boilers, and cooling towers. Any new control devices as a direct replacement of existing control devices shall comply with the specific requirements of sections 6.2.3. to 6.2.3.9.

Exceptions:

(a) For equipment that is being modified or repaired but not replaced provided that such modifications will not result in an increase in energy usage.

(b) Where a replacement or alteration of equipment requires extensive revisions to other systems, equipment, or elements of a building and such replaced or altered equipment is a like-for-like replacement.

(c) For a refrigerant change of existing equipment.

(d) For the relocation of existing equipment.

History: 2003 MR 5, Eff. Mar. 13, 2003.

**R 408.31090 Administrative requirements.**

Rule 1090. Section 4.2 of the standard is amended to read as follows:

4.2 Administrative requirements relating to permits, enforcement, interpretations, and appeals shall be in accordance with 1972 PA 230, MCL 125.1504 et seq.

History: 2003 MR 5, Eff. Mar. 13, 2003.

**R 408.31099**

**Source:** 1998-2000 AACS.

**PART 11. PREMANUFACTURED UNITS**

**R 408.31103**

**Source:** 1984 AACS.

**R 408.31104**

**Source:** 1984 AACS.

**R 408.31105**

**Source:** 1984 AACS.

**R 408.31106**

**Source:** 1984 AACS.

**R 408.31111**

**Source:** 1984 AACS.

**R 408.31113**

**Source:** 1984 AACS.

**R 408.31122**

**Source:** 1984 AACS.

**R 408.31132**

**Source:** 1984 AACS.

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**R 408.31133**  
Source: 1984 AACS.

**R 408.31134**  
Source: 1984 AACS.

**R 408.31135**  
Source: 1984 AACS.

**R 408.31136**  
Source: 1984 AACS.

**R 408.31137**  
Source: 1984 AACS.

**R 408.31138**  
Source: 1984 AACS.

**R 408.31139**  
Source: 1984 AACS.

**R 408.31141**  
Source: 1984 AACS.

**R 408.31142**  
Source: 1984 AACS.

**R 408.31144**  
Source: 1984 AACS.

**R 408.31145**  
Source: 1984 AACS.

**R 408.31152**  
Source: 1984 AACS.

**R 408.31153**  
Source: 1984 AACS.

**R 408.31162**  
Source: 1984 AACS.

**R 408.31167**  
Source: 1984 AACS.

**R 408.31168**  
Source: 1984 AACS.

**R 408.31172**  
Source: 1984 AACS.

**R 408.31174**  
Source: 1984 AACS.

**R 408.31194**  
Source: 1984 AACS.

**CONSTRUCTION SAFETY STANDARDS**

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**PART 1. GENERAL RULES**

- R 408.40101**  
Source: 1983 AACS.
- R 408.40102**  
Source: 1998-2000 AACS.
- R 408.40103**  
Source: 1997 AACS.
- R 408.40104**  
Source: 1997 AACS.
- R 408.40105**  
Source: 1997 AACS.
- R 408.40106**  
Source: 1997 AACS.
- R 408.40111**  
Source: 1997 AACS.
- R 408.40112**  
Source: 1997 AACS.
- R 408.40114**  
Source: 2002 AACS.
- R 408.40115**  
Source: 1995 AACS.
- R 408.40116**  
Source: 1983 AACS.
- R 408.40118**  
Source: 1983 AACS.
- R 408.40119**  
Source: 1983 AACS.
- R 408.40120**  
Source: 1996 AACS.
- R 408.40121**  
Source: 1983 AACS.
- R 408.40122**  
Source: 1998-2000 AACS.
- R 408.40123**  
Source: 1983 AACS.
- R 408.40125**  
Source: 1983 AACS.

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**R 408.40126**  
Source: 1983 AACS.

**R 408.40127**  
Source: 1995 AACS.

**R 408.40128**  
Source: 2002 AACS.

**R 408.40129**  
Source: 1995 AACS.

**R 408.40130**  
Source: 1995 AACS.

**R 408.40131**  
Source: 1995 AACS.

**R 408.40132**  
Source: 2002 AACS.

**R 408.40133**  
Source: 2002 AACS.

**R 408.40134**  
Source: 2002 AACS.

**PART 2. MASONRY WALL BRACING**

**R 408.40201**  
Source: 1989 AACS.

**R 408.40202**  
Source: 1989 AACS.

**R 408.40203**  
Source: 1989 AACS.

**R 408.40204**  
Source: 1989 AACS.

**R 408.40205**  
Source: 1989 AACS.

**R 408.40206**  
Source: 1989 AACS.

**R 408.40207**  
Source: 1989 AACS.

**R 408.40208**  
Source: 1989 AACS.

**R 408.40209**  
Source: 1989 AACS.

**R 408.40210**  
Source: 1989 AACS.



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**PART 6. PERSONAL PROTECTIVE EQUIPMENT**

- R 408.40601**  
Source: 1980 AACS.
- R 408.40615**  
Source: 1998-2000 AACS.
- R 408.40616**  
Source: 1998-2000 AACS.
- R 408.40617**  
Source: 1985 AACS.
- R 408.40621**  
Source: 1998-2000 AACS.
- R 408.40622**  
Source: 1980 AACS.
- R 408.40623**  
Source: 1998-2000 AACS.
- R 408.40624**  
Source: 1988 AACS.
- R 408.40625**  
Source: 1998-2000 AACS.
- R 408.40626**  
Source: 1982 AACS.
- R 408.40627**  
Source: 1980 AACS.
- R 408.40631**  
Source: 1998-2000 AACS.
- R 408.40632**  
Source: 1998-2000 AACS.
- R 408.40633**  
Source: 1996 AACS.
- R 408.40634**  
Source: 1980 AACS.
- R 408.40635**  
Source: 1998-2000 AACS.
- R 408.40636**  
Source: 1980 AACS.
- R 408.40641**  
Source: 1998-2000 AACS.

**PART 7. WELDING AND CUTTING**

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**R 408.40701**  
Source: 1980 AACS.

**R 408.40705**  
Source: 1980 AACS.

**R 408.40706**  
Source: 1980 AACS.

**R 408.40707**  
Source: 1980 AACS.

**R 408.40711**  
Source: 1980 AACS.

**R 408.40712**  
Source: 1980 AACS.

**R 408.40713**  
Source: 1996 AACS.

**R 408.40714**  
Source: 1980 AACS.

**R 408.40715**  
Source: 1980 AACS.

**R 408.40721**  
Source: 1980 AACS.

**R 408.40722**  
Source: 1980 AACS.

**R 408.40723**  
Source: 1980 AACS.

**R 408.40729**  
Source: 1980 AACS.

**R 408.40731**  
Source: 1980 AACS.

**R 408.40732**  
Source: 1980 AACS.

**R 408.40741**  
Source: 1980 AACS.

**R 408.40742**  
Source: 1980 AACS.

**R 408.40743**  
Source: 1980 AACS.

**R 408.40744**  
Source: 1980 AACS.

**R 408.40745**  
Source: 1980 AACS.

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**R 408.40746**  
Source: 1982 AACS.

**R 408.40747**  
Source: 1980 AACS.

**R 408.40751**  
Source: 1982 AACS.

**R 408.40761**  
Source: 1980 AACS.

**R 408.40762**  
Source: 1980 AACS.

**PART 8. HANDLING AND STORAGE OF MATERIALS**

**R 408.40818**  
Source: 1996 AACS.

**R 408.40819**  
Source: 1983 AACS.

**R 408.40821**  
Source: 1996 AACS.

**R 408.40833**  
Source: 1983 AACS.

**R 408.40834**  
Source: 1983 AACS.

**R 408.40836**  
Source: 1983 AACS.

**PART 9. EXCAVATION, TRENCHING, AND SHORING**

**R 408.40925**  
Source: 1993 AACS.

**R 408.40932**  
Source: 1993 AACS.

**R 408.40934**  
Source: 1993 AACS.

**R 408.40943**  
Source: 1993 AACS.

**R 408.40944**  
Source: 1993 AACS.

**R 408.40945**  
Source: 1993 AACS.

**R 408.40946**  
Source: 1988 AACS.

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**R 408.40951**  
Source: 1996 AACS.

**R 408.40953**  
Source: 1993 AACS.

**PART 10. LIFTING AND DIGGING EQUIPMENT**

**R 408.41001**  
Source: 1997 AACS.

**R 408.41001a**  
Source: 1998-2000 AACS.

**R 408.41002a**  
Source: 1995 AACS.

**R 408.41003a**  
Source: 1995 AACS.

**R 408.41004**  
Source: 1997 AACS.

**R 408.41004a**  
Source: 1995 AACS.

**CRANES, DERRICKS, AND EXCAVATION EQUIPMENT**

**R 408.41005a**  
Source: 1998-2000 AACS.

**R 408.41006a**  
Source: 1998-2000 AACS.

**R 408.41007a**  
Source: 1995 AACS.

**R 408.41008a**  
Source: 1995 AACS.

**R 408.41009a**  
Source: 1995 AACS.

**R 408.41010a**  
Source: 1995 AACS.

**R 408.41011a**  
Source: 1995 AACS.

**R 408.41012a**  
Source: 1995 AACS.

**R 408.41013a**  
Source: 1995 AACS.

**R 408.41014a**  
Source: 1998-2000 AACS.

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**R 408.41015a**  
Source: 1998-2000 AACS.

**R 408.41016a**  
Source: 1998-2000 AACS.

**R 408.41017a**  
Source: 1995 AACS.

**R 408.41018a**  
Source: 1998-2000 AACS.

**R 408.41019a**  
Source: 1995 AACS.

**R 408.41020a**  
Source: 1998-2000 AACS.

**R 408.41021a**  
Source: 1995 AACS.

**R 408.41022a**  
Source: 1995 AACS.

**R 408.41023a**  
Source: 1998-2000 AACS.

**R 408.41024**  
Source: 1997 AACS.

**R 408.41024a**  
Source: 1995 AACS.

**R 408.41025**  
Source: 1997 AACS.

**R 408.41025a**  
Source: 1998-2000 AACS.

**R 408.41026**  
Source: 1997 AACS.

**R 408.41026a**  
Source: 1995 AACS.

**R 408.41027**  
Source: 1997 AACS.

**R 408.41027a**  
Source: 1995 AACS.

**R 408.41028**  
Source: 1997 AACS.

**R 408.41028a**  
Source: 1998-2000 AACS.

**R 408.41029a**

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**Source:** 1995 AACS.

**R 408.41030**

**Source:** 1997 AACS.

**R 408.41030a**

**Source:** 1995 AACS.

**R 408.41031**

**Source:** 1997 AACS.

**R 408.41031a**

**Source:** 1998-2000 AACS.

**R 408.41032a**

**Source:** 1995 AACS.

**R 408.41033a**

**Source:** 1998-2000 AACS.

**R 408.41051a**

**Source:** 1995 AACS.

**MATERIAL AND PERSONNEL HOISTS (ELEVATORS)**

**R 408.41065a**

**Source:** 1998-2000 AACS.

**R 408.41066a**

**Source:** 1995 AACS.

**R 408.41067a**

**Source:** 1995 AACS.

**R 408.41068a**

**Source:** 1995 AACS.

**R 408.41069a**

**Source:** 1995 AACS.

**R 408.41070a**

**Source:** 1995 AACS.

**R 408.41070b**

**Source:** 1998-2000 AACS.

**PERSONNEL HOISTS**

**R 408.41071a**

**Source:** 1998-2000 AACS.

**R 408.41072a**

**Source:** 1998-2000 AACS.

**R 408.41073a**

**Source:** 1995 AACS.

**R 408.41074a**

**Source:** 1995 AACS.

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**R 408.41075a**  
Source: 1995 AACS.

**BASE-MOUNTED DRUM PERSONNEL HOISTS**

**R 408.41077a**  
Source: 1998-2000 AACS.

**R 408.41099a**  
Source: 1995 AACS.

**PART 11. FIXED AND PORTABLE LADDERS**

**R 408.41101**  
Source: 1993 AACS.

**R 408.41103**  
Source: 1993 AACS.

**R 408.41104**  
Source: 1993 AACS.

**R 408.41105**  
Source: 1993 AACS.

**R 408.41111**  
Source: 1993 AACS.

**R 408.41112**  
Source: 1993 AACS.

**R 408.41113**  
Source: 1993 AACS.

**R 408.41115**  
Source: 1993 AACS.

**R 408.41121**  
Source: 1993 AACS.

**R 408.41122**  
Source: 1993 AACS.

**R 408.41123**  
Source: 1993 AACS.

**R 408.41124**  
Source: 1993 AACS.

**R 408.41125**  
Source: 1993 AACS.

**R 408.41126**  
Source: 1993 AACS.

**R 408.41127**  
Source: 1996 AACS.

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**R 408.41128**  
Source: 1990 AACS.

**R 408.41129**  
Source: 1990 AACS.

**R 408.41130**  
Source: 1990 AACS.

**R 408.41131**  
Source: 1990 AACS.

**R 408.41132**  
Source: 1990 AACS.

**R 408.41133**  
Source: 1990 AACS.

**R 408.41140**  
Source: 1990 AACS.

**PART 12. SCAFFOLDS AND SCAFFOLD PLATFORMS**

**R 408.41201**  
Source: 1998-2000 AACS.

**R 408.41203**  
Source: 1998-2000 AACS.

**R 408.41204**  
Source: 1998-2000 AACS.

**R 408.41205**  
Source: 1998-2000 AACS.

**R 408.41206**  
Source: 1998-2000 AACS.

**R 408.41207**  
Source: 1998-2000 AACS.

**R 408.41208**  
Source: 1998-2000 AACS.

**R 408.41209**  
Source: 1998-2000 AACS.

**R 408.41210**  
Source: 1998-2000 AACS.

**R 408.41211**  
Source: 1998-2000 AACS.

**R 408.41212**  
Source: 1998-2000 AACS.

**R 408.41213**  
Source: 1998-2000 AACS.



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**R 408.41214**  
Source: 1998-2000 AACS.

**R 408.41215**  
Source: 1981 AACS.

**R 408.41216**  
Source: 1981 AACS.

**R 408.41217**  
Source: 1998-2000 AACS.

**R 408.41218**  
Source: 1981 AACS.

**R 408.41219**  
Source: 1998-2000 AACS.

**FLOOR AND GROUND SUPPORTED SCAFFOLDS**

**R 408.41221**  
Source: 1998-2000 AACS.

**R 408.41222**  
Source: 1981 AACS.

**R 408.41223**  
Source: 1998-2000 AACS.

**R 408.41224**  
Source: 1998-2000 AACS.

**R 408.41225**  
Source: 1981 AACS.

**R 408.41226**  
Source: 1981 AACS.

**R 408.41227**  
Source: 1998-2000 AACS.

**R 408.41228**  
Source: 1981 AACS.

**R 408.41229**  
Source: 1998-2000 AACS.

**SUSPENDED SCAFFOLDS**

**R 408.41231**  
Source: 1998-2000 AACS.

**R 408.41232**  
Source: 1990 AACS.

**R 408.41233**

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**Source:** 1998-2000 AACS.

**R 408.41234**

**Source:** 1998-2000 AACS.

**R 408.41235**

**Source:** 1998-2000 AACS.

**R 408.41236**

**Source:** 1998-2000 AACS.

**R 408.41237**

**Source:** 1996 AACS.

**R 408.41238**

**Source:** 1996 AACS.

**R 408.41239**

**Source:** 1998-2000 AACS.

**R 408.41240**

**Source:** 1998-2000 AACS.

**MOBILE SCAFFOLDS**

**R 408.41241**

**Source:** 1998-2000 AACS.

**R 408.41242**

**Source:** 1997 AACS.

**R 408.41243**

**Source:** 1997 AACS.

**R 408.41244**

**Source:** 1997 AACS.

**R 408.41245**

**Source:** 1997 AACS.

**R 408.41246**

**Source:** 1997 AACS.

**R 408.41251**

**Source:** 1998-2000 AACS.

**AUXILIARY SUPPORTED SCAFFOLDS**

**R 408.41252**

**Source:** 1997 AACS.

**R 408.41253**

**Source:** 1981 AACS.

**R 408.41254**

**Source:** 1981 AACS.

**R 408.41255**

**Source:** 1990 AACS.

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**R 408.41256**

Source: 1981 AACS.

**R 408.41256a**

Source: 1998-2000 AACS.

**R 408.41256b**

Source: 1998-2000 AACS.

**R 408.41257**

Source: 1997 AACS.

**R 408.41258**

Source: 1997 AACS.

**R 408.41259**

Source: 1997 AACS.

**R 408.41260**

Source: 1997 AACS.

**WIRE, FIBER, AND SYNTHETIC ROPE**

**R 408.41261**

Source: 1998-2000 AACS.

**R 408.41262**

Source: 1981 AACS.

**R 408.41263**

Source: 1981 AACS.

**R 408.41264**

Source: 1998-2000 AACS.

**PART 13. MOBILE EQUIPMENT**

**R 408.41301**

Source: 1998-2000 AACS.

**PART 14. TUNNELS, SHAFTS, CAISSONS, AND COFFERDAMS**

**GENERAL PROVISIONS**

**R 408.41401 Scope.**

Rule 1401. This part applies to the construction, modification, and major repair of tunnels, shafts, caissons, chambers, passageways, and cofferdams, any other aspect of tunnel construction, and the use and maintenance of equipment. This part does not apply to routine maintenance of an existing structure; excavation and trenching operations as prescribed by R 408.40901 et seq., construction safety standard Part 9. Excavation, trenching and shoring; or underground electrical transmission and distribution lines as prescribed in R 408.41601 et seq., construction safety standard Part 16. Power transmission and distribution. This section also applies to cut-and-cover excavations which are both physically connected to ongoing underground construction operations within the scope of this section and covered in such a manner as to create conditions characteristic of underground construction.

History: 1954 ACS 78, Eff. Mar. 2, 1974; 1954 ACS 88, Eff. Sept. 16, 1976; 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1993 MR 7, Eff. July 24, 1993; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41405 Applicability.**

Rule 1405. (1) These rules apply to pipe augering operations with the exception of R 408.41461 and R 408.41463.

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History: 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41410 Adoption of standards by reference.**

Rule 1410. (1) The standards specified in this rule, except for the standards specified in subrules (2) and (3) of this rule, are adopted by reference.

(a) The following standards are available from the United States Government Bookstore, Patrick V. McNamara Federal Building, Suite 160, 477 Michigan Avenue, Detroit, Michigan 48226; or via the internet at web-site: <http://bookstore.gpo.gov>; or at the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143, at a cost as of the time of adoption of these amendments, as stated in this subdivision.

(i) The provisions of 30 C.F.R. Parts 1-199, Mineral Resources, revised July 1, 2000. Cost: \$52.00.

(ii) The provisions of 42 C.F.R. Part 84, Public Health Service, revised October 1, 2001. Cost: \$65.00.

(b) The following standards are available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112; telephone number 1-800-854-7179; or via the internet at web-site [www.global.ihs.com](http://www.global.ihs.com); or at the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan 48909-8143, at a cost as of the time of adoption of these amendments, as stated in this subdivision.

(i) National fire protection association standard NFPA 70: Standard for "National Electrical Code," 1999 edition. Cost: \$98.00

(ii) American welding society (AWS) standard IHS AWSC "AWS-Structural Welding Code," 2000 edition. Cost: \$350.00

(2) The bureau of construction codes, elevator safety board 1967 PA 227, MCL 408.801 et seq. R 408.8511 to R 408.8524 are referenced in these rules and are available from the Michigan Department of Consumer and Industry Services, Bureau of Construction Codes, 2501 Woodlake Circle, Okemos, Michigan 48909; or via the internet at web-site: [www.michigan.gov/cis](http://www.michigan.gov/cis); or from the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143, at no cost as of the time of adoption of these amendments.

(3) The following occupational safety and health administrative standards are referenced in these rules and are available from the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48909-8143; or via the internet at web-site: [www.michigan.miosha](http://www.michigan.miosha), at no cost as of the time of adoption of these amendments:

(a) Construction safety standard Part 1. General Rules, being R 408.40101 et seq. of the Michigan administrative code.

(b) Construction safety standard Part 6. Personal Protective Equipment, being R 408.40601 et seq. of the Michigan administrative code.

(c) Construction safety standard Part 7. Welding and Cutting, being R 408.40701 et seq. of the Michigan administrative code.

(d) Construction safety standard Part 9. Excavation, Trenching, and Shoring, being R 408.40901 et seq. of the Michigan administrative code.

(e) Construction safety standard Part 10. Lifting and Digging Equipment, being R 408.41001 et seq. of the Michigan administrative code.

(f) Construction safety standard Part 11. Fixed and Portable Ladders, being R 408.41101 et seq. of the Michigan administrative code.

(g) Construction safety standard Part 16. Power Transmission and Distribution, being R 408.41601 et seq. of the Michigan administrative code.

(h) Construction safety standard Part 17. Electrical Installations, being R 408.41701 et seq. of the Michigan administrative code.

(i) Construction safety standard Part 18. Fire Protection and Prevention, being R 408.41801 et seq. of the Michigan administrative code.

(j) Construction safety standard Part 21. Guarding of Walking and Working Areas, being R 408.42101 et seq. of the Michigan administrative code.

(k) Construction safety standard Part 22. Signals, Signs, Tags, and Barricades, being R 408.42201 et seq. of the Michigan administrative code.

(l) Construction safety standard Part 27. Blasting and Use of Explosives, being R 408.42701 et seq. of the Michigan administrative code.

(m) Construction safety standard Part 45. Fall Protection, being R 408.44501 et seq. of the Michigan administrative code.

(n) Occupational health standard Part 451. Respiratory Protection, being R 325.60051 et seq. of the Michigan administrative code.

(o) Occupational health standard Part 665. Underground Construction, Caissons, Cofferdams, and Compressed Air, being R 325.62991 et seq. of the Michigan administrative code.

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History: 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41454 Rescinded.**

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1993 MR 7, Eff. July 24, 1993; rescinded 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41455 Definitions; A to H.**

Rule 1455. (1) "Atmospheric pressure" means the pressure of air at sea level, usually 14.7 p.s.i.a. (1 atmosphere) or zero p.s.i.g.

(2) "Auger tunnel" means a tunnel that is excavated by use of a continuous flight auger system, with or without a sleeve or other type of liner.

(3) "Bulkhead" means an airtight structure separating the working chamber from free air or from another chamber under a lesser pressure than the working pressure.

(4) "Caisson" means either a generally vertical foundation unit below grade or a chamber placed in the ground or water for excavating earth and in which it is possible for a person to work under air pressure greater than atmospheric pressure to excavate material below water level.

(5) "Cofferdam" means a temporary structure used to control the flow of water and other material during construction operations.

(6) "Competent person" means a person who is experienced and capable of identifying existing and predictable hazards in the surroundings or under working conditions which are hazardous or dangerous to an employee, and who has the authority and knowledge to take prompt corrective measures to eliminate hazards.

(7) "Compressed air" means an environment that has a pressure greater than atmospheric pressure.

(8) "Decanting" means a method used for decompressing under emergency circumstances. In this procedure, the employees are brought to atmospheric pressure with a very high gas tension in the tissues and then immediately recompressed in a second and separate chamber or lock.

(9) "Emergency lock" means a lock designed to hold and permit the quick passage of an entire shift of employees.

(10) "Escape-only respirator" means a respirator intended to be used only for emergency exit.

(11) "High air" means air pressure used to supply power to pneumatic tools and devices.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1989 MR 11, Eff. Dec. 1, 1989; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41456 Definitions; M to W.**

Rule 1456. (1) "Man lock" means a chamber through which employees pass from 1 air pressure environment into another.

(2) "Materials lock" means a chamber through which materials and equipment pass from 1 air pressure environment into another.

(3) "Occupied tunnel" means any tunnel entered by 1 or more employees.

(4) "Pressure" means a force acting on a unit area, usually shown as pounds per square inch (p.s.i.).

(5) "Qualified person" means a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.

(6) "Safety screen" means an airtight and watertight diaphragm placed vertically across the upper part of a compressed air tunnel between the face and bulkhead in order to restrain sudden flooding of the crown of the tunnel between the safety screen and the bulkhead, thus providing a means of refuge and exit from a flooding or flooded tunnel.

(7) "Shaft" means a vertical or inclined opening excavated below ground level, that is for the purpose of tunnel operations.

(8) "Tunnel" means a generally horizontal excavation or facility more than 14 inches in diameter, width, or height and more than 6 feet in length below ground or water. Facilities used for the acquisition of minerals, ores, and fossil fuels, which are commonly known as mines, are excluded from this definition.

(9) "Working chamber" means the space or compartment under air pressure in which the work is being done.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1984 MR 7, Eff. Aug. 1, 1984; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41461 Advance notice of tunnel excavation.**

Rule 1461. (1) Before the start of a tunnel, as defined in R 408.41456, which is 24 inches or more in diameter, height or width, and which will be occupied by an employee, a report prepared by the employer performing the tunnel excavation shall be sent to the Michigan Department of Consumer and Industry Services, Construction Safety Division, 7150 Harris Drive, P.O. Box 30645, Lansing, Michigan 48909-8145, in addition to the following civil authorities in the area: hospital, police department, fire department, and sheriff department. The report shall contain all of the following information:

(a) Name of contractor or contractors.

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- (b) Starting date.
  - (c) Length of tunnel.
  - (d) Diameter of cut.
  - (e) Finished diameter.
  - (f) Number of shafts.
  - (g) Depth of shafts.
  - (h) Location of shafts.
  - (i) Method of tunneling.
  - (j) Maximum working pressure in tunnel or shaft.
  - (k) Type of primary liner.
  - (l) Number of shifts.
  - (m) Projected completion date.
  - (n) Projected maximum work force within tunnel.
  - (2) Parties notified pursuant to subrule (1) of this rule shall be notified when the work has been completed.
  - (3) If, after the start of any tunnel project, a tunnel or shaft that the employer has shown to be constructed, modified, or repaired under atmospheric conditions requires the tunnel to be pressurized, then the employer shall notify the Construction Safety Division at the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, P.O. Box 30645, Lansing, Michigan 48909-8145, 24 hours before allowing employees to enter the tunnel.
  - (4) If the work operations of any occupied tunnel projects are discontinued for 30 consecutive days or longer, then the employer shall notify the construction safety division at the Michigan department of consumer and industry services, 24 hours before resuming work operations on the tunnel project.
- History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41462 Safety generally.**

- Rule 1462. (1) The employer shall inform oncoming shifts of any hazardous occurrences or conditions that have affected or might affect employee safety, including liberation of gas, equipment failures, earth or rock slides, cave-ins, floodings, fires, or explosions.
- (2) A safe means of egress and access to all work areas shall be provided and maintained free of hazards.
  - (3) Form scrap material, lumber that has protruding nails, and all other debris shall be kept cleared from the work areas, passageways, stairs, locks, and change houses.
  - (4) Combustible debris shall be removed daily during the course of construction.
  - (5) If a haulage roadbed consists of track and ties, then the employer shall provide a walkway. The walkway shall be a minimum of 2 2-inch planks, side by side, abutted, joined, and secured to a tie or other equivalent means. If space is not adequate for 2 2-inch by 10-inch planks, then the walkway shall be as wide as space permits.
  - (6) When work is not being performed, access to an underground opening shall be covered, bulkheaded, fenced off, or restricted by gates or doors and appropriately posted.
  - (7) Any section of tunnel that is not in use shall be barricaded to prevent ingress by an unauthorized employee.
  - (8) Construction of a trench, manhole, or other opening for use in a tunnel or shaft operation shall be as prescribed in R 408.40901 et seq., construction safety standard Part 9. Excavation, Trenching, and Shoring and R 408.44501 et seq., construction safety standard Part 45. Fall Protection.
  - (9) The power source to a tunneling machine shall be disconnected or locked out when an employee is working in the area of the cutting head or performing maintenance work on the tunneling machine where motion could cause an injury.
  - (10) An area subject to subsidence that is hazardous to an employee shall be fenced and appropriately posted.
  - (11) Each operation shall have a check-in and check-out system that will provide positive identification of an employee by number or name and will identify the location of each employee who is underground. An accurate record shall be kept on the surface. However, a check-in and check-out system is not required when the construction of underground facilities that are designed for human occupancy has been completed so that the permanent environmental controls are effective and the remaining construction activity will not cause any environmental hazard or structural failure within the facilities.
  - (12) A ladder or stairway that is provided in a shaft, caisson, or steep incline shall be as prescribed in R 408.41101 et seq., construction safety standard Part 11. Fixed and Portable Ladders and R 408.42101 et seq., construction safety standard Part 21. Guarding of Walking and Working Areas.
  - (13) An employer shall establish and coordinate with the employees an accident prevention program and a safety training program as prescribed in R 408.40101 et seq., construction safety standard Part 1. General Rules.
  - (14) All employees shall be instructed in the recognition and avoidance of hazards that are associated with all of the following underground construction activities:
    - (a) Air monitoring.

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- (b) Ventilation.
  - (c) Illumination.
  - (d) Communications.
  - (e) Flood control.
  - (f) Mechanical equipment.
  - (g) Personal protective equipment.
  - (h) Explosives.
  - (i) Fire prevention and protection.
  - (j) Emergency procedures, including evacuation plans and check-in and check-out systems.
  - (15) The employer shall issue each employee a copy of the project's general safety rules before the employee commences work at the project.
  - (16) Each employer shall designate a qualified person who is responsible for administering the safety program. A written record shall be maintained of the safety training program.
  - (17) Before an employee enters a tunnel where the atmosphere may be hazardous due to a condition such as a deficiency of oxygen, or may be toxic in excess of the maximum allowable limits, the tunnel shall be tested and the results shall be recorded as prescribed in R 325.62991 et seq., occupational health standard Part 665. Underground Construction, Caissons, Cofferdams, and Compressed Air. The records shall be maintained at the jobsite. If the atmosphere is hazardous, either sufficient ventilation to eliminate the hazard shall be provided or respiratory equipment as prescribed by the department of consumer and industry services shall be worn.
  - (18) If an atmosphere is found to be explosive, then sparks, flame, and other sources of ignition shall be prohibited and ventilation shall be provided until the hazard has been reduced and maintained at or below the maximum allowable limits as prescribed by the department of consumer and industry services.
  - (19) An occupied auger or pipe jacking tunnel shall be monitored for air quality immediately before entering the tunnel and during the period of occupancy in the tunnel.
- History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1984 MR 7, Eff. Aug. 1, 1984; 1993 MR 7, Eff. July 24, 1993; 1996 MR 8, Eff. Sept. 19, 1996; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41463 Emergency provisions; plans; equipment; rescue crews.**

- Rule 1463. (1) The employer shall develop a plan to evacuate a tunnel in an emergency and the procedures to carry out the plan shall be made known to the employees and to the rescue team.
- (2) An employer shall ensure that rescue teams are familiar with conditions at the jobsite.
- (3) On jobsites where 25 or more employees work underground at one time, an employer shall provide, or make arrangements in advance with locally available rescue services to provide, not less than 2 5-person rescue teams. One of the teams shall be on the jobsite or within 1/2 hour of travel time from the entry point and the other team shall be within 2 hours of travel time from the entry point.
- (4) On jobsites where less than 25 employees work underground at one time, an employer shall provide, or make arrangements in advance with locally available rescue services to provide, at least 1 5-person rescue team. The team shall either be on the jobsite or be within 1/2 hour of travel time from the entry point.
- (5) On jobsites where flammable or noxious gases are encountered or anticipated in hazardous quantities, rescue team members shall practice donning and using self-contained breathing apparatus monthly.
- (6) An emergency hoisting facility, such as a mud box or a crane, shall be readily available at a shaft that is used as a means of egress, unless a hoisting means is provided that is independent of an electrical power failure. The hoisting means shall be designed so that the load hoist drum is powered in both directions of rotation and so that the brake is automatically applied upon power release or failure.
- (7) An employer shall provide an escape-only respirator that is a self-contained breathing apparatus with a minimum of a 5 minute air supply. Respirators shall be approved by the national institute for occupational safety and health as prescribed in the provisions of 42 C.F.R. Part 84. Public Health Service, revised October 1, 2001, which is adopted by reference in R 408.41410. Respirators shall be used in accordance with R 325.60051 et seq., occupational health standard Part 451. Respirator protection. Escape-only respirators shall be immediately available for each employee at work stations in underground areas where employees might be trapped by smoke or gas.
- (8) Escape-only respirator that is a self-contained breathing apparatus shall be maintained in good operating condition. Employees shall be trained in its use.
- (9) There shall be a rescue crew for each shift of all underground operations. The rescue crew shall be trained in rescue procedures, the use and limitations of a breathing apparatus, and the use of fire fighting equipment. The crews shall be retrained at least once each year. Local fire and police personnel may be used as rescue teams for tunnel operations. If local personnel are to be used, then the employer shall arrange for assistance before the start of the project.

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(10) The following minimum rescue equipment shall be provided at the top of the shaft:

- (a) Four units of 1/2-hour-rated, self-contained breathing apparatus.
- (b) Four additional units of 1/2-hour-rated air bottles.
- (c) Four bureau of mines flashlights or lanterns with additional batteries for each light. The flashlights shall be as prescribed in part 20 of subchapter B of the provisions of 30 C.F.R. Parts 1-199, Mineral Resources, revised July 1, 2000, which is adopted by reference in R 408.41410.
- (d) Two 2A-10BC fire extinguishers.
- (e) One stretcher, wire basket type or equivalent with slings attached.
- (f) One fire blanket.
- (g) One 10-ton hand hydraulic rescue kit.
- (h) One first aid kit as prescribed in R 408.40101 et seq., construction safety standard Part 1. General Rules.

(11) At least 1 employee shall be on duty above ground when an employee is working underground. The primary duty of the employee who is above ground shall be to secure immediate aid for an employee who is underground in case of an emergency.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1979 ACS 12, Eff. Dec. 10, 1982; 1993 MR 7, Eff. July 24, 1993; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41464 Communication system; location; signals.**

Rule 1464. (1) In a tunnel that is more than 225 feet long, a communication system shall be provided at all of the following locations:

- (a) The working face.
- (b) The top of the shaft.
- (c) The bottom of the shaft.
- (d) The hoisting station, if provided.
- (e) Each 1,000 feet of tunnel.
- (f) The office, if provided. A public telephone or other communication system shall be provided or available to each tunnel project to secure outside emergency help.
- (g) Hoist operators shall be provided with a closed-circuit voice communication system to each landing station. The system shall have speaker microphones located so that the operator can communicate with individual landing stations during hoist use.

(2) An employer shall establish and maintain direct communications for coordination of activities with other employers whose operations at the jobsite affect or may affect the safety of employees who are underground.

(3) If a tunnel is pressurized, then all of the following additional locations shall also be provided with a communication system:

- (a) The working chamber side of the manlock near the door.
- (b) The interior of all locks.
- (c) The lock attendant's station.
- (d) The compressor plant.
- (e) The first aid station.

(4) Communication systems shall be tested upon initial entry of each shift to the underground, and as often as necessary thereafter, to ensure that they are in working order.

(5) An employee who works alone underground in a hazardous location and who is both out of the range of natural unassisted voice communication and not under observation by other persons shall be provided with an effective means of obtaining assistance in an emergency.

(6) For an occupied pipe jacking tunnel that is more than 225 feet long, there shall be a telephone or other signal communication system established between the working face, the shaft tunnel portal, and at least 1 location on the surface.

(7) When a hoist house is provided, there shall be a second independent method of signaling, either audibly or visibly, to the hoist engineer from all landings in the shaft or slope.

(8) A signal code for hoisting shall be posted prominently in the engine house and at all places where signals are given. The signal code shall be as prescribed in R 408.41001 et seq., construction safety standard, Part 10. Lifting and Digging Equipment.

(9) If a gassy condition exists, then all phones that are located within the tunnel shall conform to the United States Bureau of Mines Schedule 9b, Part 23 of the provisions of 30 C.F.R. Parts 1-199, Mineral Resources, revised July 1, 2000, which is adopted by reference in R 408.41410. The telephone or other signal communication systems shall be independent of the tunnel power supply and shall be installed so that the use or disruption of any one phone or signal location will not disrupt the operation of the system from any other location.



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History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1984 MR 7, Eff. Aug. 1, 1984; 1993 MR 7, Eff. July 24, 1993; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41465 Protective clothing or equipment.**

Rule 1465. (1) Protective clothing or equipment shall be required to be used as prescribed in R 408.40601 et seq., construction safety standard, Part 6. Personal Protective Equipment.

(2) An employee working in a wet shaft, tunnel, or caisson shall wear safety toe rubber boots which have flat gripper-type soles and which are provided by the employer, at no expense to the employee.

(3) An employee working in a shaft, tunnel, or caisson shall wear a protective helmet, which shall be provided for and as prescribed in R 408.40601 et seq., construction safety standard, Part 6. Personal Protective Equipment.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1979 ACS 12, Eff. Dec. 10, 1982; 1984 MR 7, Eff. Aug. 1, 1984; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41466 Electrical requirements.**

Rule 1466. (1) A power line shall be well separated or insulated from water lines, telephone lines, and air lines.

(2) Lighting circuits shall be located so that the movement of personnel or equipment will not damage the circuits or disrupt service.

(3) Electrical equipment and wiring shall be installed and maintained as prescribed in the provisions of subparts F to J of part 77 of the provisions of 30 C.F.R. Parts 1-199, Mineral Resources, revised July 1, 2000, which is adopted by reference in R 408.41410. The provisions of subparts F to J are adopted by reference with the following amendments:

(a) Article 305-1(a) is amended to read as follows: Temporary electrical power and lighting installations shall be permitted during the period of construction, remodeling, maintenance, repair, or demolition of buildings, structures, equipment, or similar activities which are located at ground level and which are part of facilities used for the construction of tunnels, shafts, and cofferdams.

(b) Article 310-15, is amended to read as follows: The maximum continuous ampacities for copper, aluminum, and copper-clad aluminum conductors shall be as specified in table 310-16 to 310-19 and accompanying notes 1 to 12. Power and lighting circuits may be loaded to the maximum design temperatures of the wire or cable insulation under the following conditions:

(i) A means shall be provided to disconnect the load if the feeder cable exceeds design temperature by more than 10% for 1 minute.

(ii) Power cable shall have a grounding and a pilot wire that conforms to the insulated power cable engineers association (IPCEA) type G grounded cable (G-GC) or equivalent.

(iii) Power cable shall have a loose connector emergency shutdown ability.

(iv) Power cable shall have a ground fault emergency shutdown ability.

(v) Power cable shall have an arc between phases emergency shutdown ability.

(c) Oil filled transformers shall not be used underground unless they are located in a fire-resistant enclosure suitably vented to the outside and surrounded by a dike to retain the contents of the transformer in the event of rupture.

(4) All electrical power circuits that supply portable or hand-held tools, lights, or equipment shall be protected by approved ground-fault interrupters as prescribed in R 408.41701 et seq., construction safety standard, Part 17. Electrical Installations.

(5) The regular system of illumination shall be supplemented by lighting that can be activated upon the failure of the regular system. Supplemental lighting, such as approved flashlights or lanterns, shall be sufficient to allow all employees to evacuate the tunnel.

(6) A tunnel excavating machine that is built and designed after 1977 shall conform to the provisions of the national fire protection association standard NFPA 70: Standard for National Electrical Code, 1999 Edition, which is adopted by reference in R 408.41410.

(7) A tunnel excavating machine that is designed and built after 1977 shall be equipped with a limit switch to prevent the accidental rotation of the main structure of the machine.

(8) Electrical installation in underground areas where oil, grease, or diesel fuel are stored shall be used only for lighting fixtures.

(9) Lighting fixtures in storage areas, or within 25 feet (7.62 meters) of underground areas where oil, grease, or diesel fuel are stored, shall be approved for class I, division 2 locations, as prescribed in R 408.41701 et seq., construction safety standard Part 17. Electrical Installation.

History: 1993 MR 7, Eff. July 24, 1993; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41467 Fire prevention and protection.**

Rule 1467. (1) The applicable requirements for fire prevention and protection as prescribed in R 408.41801 et seq.,

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- construction safety standard Part 18. Fire Prevention and Protection shall be complied with in all tunnel and shaft operations.
- (2) Smoking and open flames are prohibited. An employer is responsible for collecting all personal sources of ignition, such as matches and lighters, from all persons. Welding and cutting, where required, shall be in compliance with the provisions of subrules (9), (10), (11), (12), and (13) of this rule. A fire watch shall be maintained when hot work is performed.
- (3) Not more than a 1-day supply of diesel fuel shall be stored in a tunnel or shaft. Gasoline or liquefied petroleum gas shall not be taken in a tunnel or shaft. Acetylene or methylacetylene propadiene stabilized gas may be used underground solely for welding, cutting, and other hot work and only as prescribed in R 408.40701 et seq., construction safety standard Part 7. Welding and Cutting.
- (4) The piping of diesel fuel from the surface to an underground location is permitted only if all of the following provisions are complied with:
- (a) Diesel fuel is contained at the surface in a tank with a maximum capacity that is not more than the amount of fuel required to supply, for a 24-hour period, the equipment that is serviced by the underground fueling station.
  - (b) The surface tank is connected to the underground fueling station of an acceptable pipe or hose system that is controlled at the surface by a valve and at the shaft bottom by a hose nozzle.
  - (c) The pipe is empty at all times, except when transferring diesel fuel from the surface tank to a piece of equipment in use underground.
  - (d) Hoisting operations in the shaft are suspended during refueling operations if the supply piping in the shaft is not protected from damage.
  - (e) Acetylene, liquefied petroleum gas, and methylacetylene propadiene stabilized gas may be used underground only for welding, cutting, and other hot work and only in accordance with the provisions of subrules (9), (10), (11), (12), and (13) of this rule. Not more than the amount of fuel gas and oxygen cylinders necessary to perform welding, cutting, or other hot work during the next 24-hour period shall be permitted underground.
  - (f) Not more than the amount of fuel gas and oxygen cylinders necessary to perform welding, cutting, or other hot work during the next 24-hour period shall be permitted underground.
- (5) Leaks and spills of flammable or combustible fluids shall be cleaned up immediately.
- (6) Oil, grease, or diesel fuel that is stored in a tunnel or shaft shall be kept in tightly sealed containers in fire-resistant areas at safe distances from explosives, magazines, electrical installations, and shaft stations. Electrical installations in underground areas where oil, grease, or diesel fuel are stored shall be used only for lighting fixtures. Lighting fixtures in storage areas, or within 25 feet (7.62 meters) of underground areas where oil, grease, or diesel fuel are stored, shall be approved for class I, division 2 locations.
- (7) Fire-resistant hydraulic fluids shall be used in hydraulically actuated underground machinery and equipment. For the purpose of this requirement, a fire-resistant hydraulic fluid means any liquid which has a flash point above 200 degrees Fahrenheit and which has a vapor pressure of not more than 40 p.s.i. (absolute) at 100 degrees Fahrenheit.
- (8) An approved 4A:40B:C rating fire extinguisher or equivalent protection shall be provided at the drive pulley of an underground conveyor and at 300-foot intervals along the belt. A minimum of 2 2A-10BC approved fire extinguishers shall be provided at the tunneling machine.
- (9) A pressurized tunnel in which combustible materials are stored or used shall be equipped with a 2-inch minimum diameter water line with an outlet that is connected to a 1 1/2-inch nominal diameter fire hose which is capable of reaching the combustible materials. The water supply shall be of sufficient volume and pressure to efficiently operate the type of nozzle used on the fire hose for a minimum of 1 minute. Fire extinguishers may be substituted for the water and fire hose if they meet the requirements for the water service.
- (10) All of the following are additional requirements for gassy operations:
- (a) Only acceptable equipment, maintained in suitable condition, shall be used in gassy operations.
  - (b) Mobile diesel-powered equipment used in gassy operations shall be either approved as prescribed in the requirements of 30 C.F.R. Part 36, Mineral Resources, revised July 1, 2000, which is adopted by reference in R 408.41410 or shall be demonstrated by the employer to be fully equivalent to the mine safety and health administration approved equipment and shall be operated in accordance with that part.
  - (c) Each entrance to a gassy operation shall be prominently posted with signs notifying all entrants of the gassy classification.
- (11) A minimum of 1 approved 2A-10BC fire extinguisher shall be provided for each electrical, diesel, or hydraulic powered machine used in a tunnel or shaft.
- (12) A noncombustible barrier shall be installed below welding or burning operations.
- (13) In an underground operation, local gas checks shall be made before and during a welding or cutting operation and during a drilling operation that would penetrate the tunnel.
- (14) If more than .25% of methane by volume or 5% of the LEL, lower explosive limit, of a flammable gas or petroleum vapor is detected, then the welding, cutting, heating, or drilling operation shall cease until the hazard has been eliminated.
- (15) A fire watch shall be maintained around welding and cutting operations until all possibility of fire is eliminated. The fire

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watch shall be provided with a minimum of 1 approved 2A-10BC fire extinguisher.

(16) Flammable materials or supplies, other than those used during 1 shift, shall not be stored within 100 feet (30.48 meters) of any tunnel or shaft opening. If this is not feasible because of space limitations on the jobsite, then such materials may be located within the 100 foot limit, if both of the following provisions are complied with:

(a) The materials are located as far as practicable from the opening.

(b) A fire resistant barrier of not less than a 1-hour rating is placed between the stored material and the opening or additional precautions are taken that will protect the materials from ignition sources.

(17) A head frame shall be constructed of steel or other fire resistant material. A hoist house and other temporary surface building or structures within 100 feet of the shaft, caisson, or tunnel opening shall be built of fire-resistant materials that have a fire resistance rating of not less than 1 hour.

History: 1993 MR 7, Eff. July 24, 1993; 2003 MR 4, Eff. Feb. 27, 2003.

**TUNNELS AND SHAFTS**

**R 408.41471 Ground support; inspections; repairs.**

Rule 1471. (1) A qualified employee shall inspect the roof, face, and walls of portals, work areas, and haulage ways, or travelways at the start of each shift and frequently thereafter as needed. If loose soil or rock or fractured material is encountered, then it shall be scaled or protected and supported. The employee conducting the inspections shall be protected from loose ground by location, ground support, or equivalent means. Suitable protection shall be provided for employees exposed to the hazard of loose ground while installing ground support systems. Support sets shall be installed so that the bottoms have sufficient anchorage to prevent ground pressures from dislodging the support base of the sets. Lateral bracing (collar bracing, tie rods, or spreaders) shall be provided between immediately adjacent sets to ensure added stability. Damaged or dislodged ground supports that create a hazardous condition shall be promptly repaired or replaced. When replacing supports, the new supports shall be installed before the damaged supports are removed. A shield or other type of support shall be used to maintain a safe travel way for employees working in dead-end areas ahead of any support replacement operation.

(2) A scaling bar shall be in good condition. A blunted or severely worn bar shall not be used.

(3) A torque meter and a torque wrench shall be available where rock bolts are used for ground support. Frequent tests shall be made to determine if the bolts are tight. The test frequency shall be determined by rock conditions and distance from vibration sources.

(4) A damaged or dislodged tunnel support shall be repaired or replaced when structural integrity is impaired. A new support shall be installed if possible before removing damaged supports.

(5) Tunnel supports shall be designed and installed to prevent pressure from pushing them inward into the excavation.

(6) Roof supports shall be used where ground conditions are such that there could be a ground failure ahead of tunnel sets.

(7) A tunnel that is to be occupied by employees shall be provided with a steel casing, concrete pipe, timber, or other material of required strength to support the surrounding earth.

(8) If an employee is required to enter a tunnel less than 3 feet in diameter, then a lifeline for instant rescue shall be securely fastened to his or her ankles. Another employee shall be stationed at the tunnel entrance to operate the lifeline. In addition, ventilation shall be provided with an air line.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41472 Shafts; supports; inspections; lifelines.**

Rule 1472. (1) A shaft that an employee is required to enter shall be provided with steel casing, concrete pipe, timber, or other material that is strong enough to support the surrounding earth.

(2) For rescue operations, a lifeline shall be securely fastened to a safety harness on each employee who enters a shaft that is less than 4 feet in diameter. The lifeline and safety harness shall be provided as prescribed in R 408.44501 et seq., construction safety standard Part 45. Fall Protection.

(3) A shaft that is more than 5 feet in depth shall be braced to support the surrounding earth. The bracing shall be provided the full depth of the shaft, or, if rock is encountered, to not less than 5 feet into solid rock, and shall extend not less than 1 foot above the ground level.

(4) After a blasting operation, the bracing shall be inspected. If the bracing is found to be unsafe, then corrections shall be made before the shift operations are continued.

(5) A shaft or caisson shall be protected with a guardrail system as prescribed in R 408.44501 et seq., construction safety standard Part 45. Fall Protection, or barricaded as prescribed in R 408.42201 et seq., construction safety standard Part 22. Signals, Signs, Tags, and Barricades. A gate opening into the shaft shall be provided and shall be closed at all times, except when necessary to enter or leave the shaft or caisson.

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History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1979 ACS 12, Eff. Dec. 10, 1982; 1984 MR 7, Eff. Aug. 1, 1984; 1996 MR 8, Eff. Sept. 19, 1996; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41474 Blasting.**

Rule 1474. (1) All blasting and explosives handling shall be conducted as prescribed in R 408.42701 et seq., construction safety standard Part 27. Blasting and Use of Explosives.

(2) An employer shall not allow an employee to enter a shaft or a tunnel heading after blasting until air quality meets minimum requirements.

(3) Blasting wire shall be kept clear of electrical lines, pipes, rails, and other conductive material, excluding earth, to prevent explosives initiation or employee exposure to electric current.

(4) After blasting operations in shafts, a competent person shall determine if the walls, ladders, timbers, blocking, or wedges have loosened. If so, necessary repairs shall be made before employees other than those assigned to make the repairs are allowed in or below the affected areas.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41475 Haulage; inspection; braking; riding.**

Rule 1475. (1) Haulage equipment that is to be used during a shift shall be inspected by a qualified person before the start of the shift. Known defects that affect the safety of employees shall be corrected before the equipment is used.

(2) The roadbed, rails, joints, switches, frogs, and other elements of the track of a haulage road shall be constructed, installed, and maintained in a manner that is consistent with the speed and type of the haulage operations to be conducted.

(3) A track switch shall be provided with a locking or spring-loaded thrown bridle bar and guardrail. The switch throw, where possible, shall be placed on the clearance side, and the switch throw shall operate parallel to the haulage road.

(4) A powered locomotive or other mobile equipment shall be provided with suitable brakes, an audible warning device for use by the operator as needed, and lights at both ends.

(5) Powered mobile haulage equipment that is subject to falling materials shall be equipped with a cab, canopy, or other protective device that is capable of protecting the operator from shifting or falling materials. For cabs where glazing is used, the glass shall be safety glass, or its equivalent, and shall be maintained and cleaned so that vision is not obstructed.

(6) Powered mobile equipment shall not be left unattended unless the power is off, all operating controls are in the neutral position, and the brakes are set or other equivalent precautions are taken to prevent rolling. The operating controls shall be designed to automatically return to a neutral position or shall be equipped with a deadman control.

(7) A trolley wire shall be protected from contact with employees. Energized rails shall not be used, except when used as a ground return for a trolley wire. If rails serve as a return for a trolley circuit, then both rails shall be bonded at every joint and cross bonded every 200 feet (60.96 meters).

(8) Backstops or automatic braking shall be installed on an inclined conveyor to prevent the conveyor from running out of control and creating a hazard for the employee.

(9) An employee shall not ride on any of the following unless specifically designed or adapted for transporting employees:

(a) A power-driven chain, belt, or bucket conveyor.

(b) A dipper.

(c) A shovel bucket.

(d) Forks.

(e) A clamshell.

(f) The bed of a dump truck.

(g) Haulage equipment. An employee shall not ride haulage equipment unless it is equipped with seating for each passenger and protects passengers from being struck, crushed, or caught between other equipment or surfaces.

(10) An employer shall not use an endless belt-type man lift in underground construction.

(11) Cars that are dumped by hand shall be provided with tie-down chains or dumper blocks to prevent the cars from overturning.

(12) A rocker bottom or bottom-dump car shall be equipped with positive-locking devices.

(13) Equipment that is to be hauled shall be loaded or protected so as to prevent sliding or spillage.

(14) Parked rail haulage equipment shall be chocked or chained if subject to accidental movement.

(15) Berms, bumper blocks, safety hooks, or similar means shall be provided to prevent overtravel or overturning at dumping locations and, where necessary, at track dead ends.

(16) Supplies, materials, and tools, other than small hand tools shall not be transported with employees in the same car and shall not be transported on top of a locomotive.

(17) A refuge station shall be provided not more than every 300 feet where a clearance of 2 feet from moving equipment cannot be provided for employees unless the employees are prohibited from walking the haulage route during movement of a

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haulage train along the route.

(18) A train that is used on an incline which would cause the cars to run out of control shall, in addition to couplings, have safety chains, or the equivalent, to connect the cars and the power haulage equipment in a train. The safety chains or other connections shall be capable of maintaining connection between cars in the event of either coupler disconnect, failure, or breakage.

(19) When an employee is being transported in a train, the operator shall have clear vision beyond the forward end of the train for safe operation.

(20) Mobile equipment, including rail-mounted equipment, shall be stopped for manual connecting or service work.

(21) Employees shall not reach between moving cars during coupling operations.

(22) Couplings shall not be aligned, shifted, or cleaned when cars or locomotives are moving.

(23) Where switching facilities are available, occupied personnel cars shall be pulled, not pushed. If occupied personnel cars must be pushed and the visibility of the track is hampered, then a qualified person shall be stationed in the lead car to give signals to the locomotive operator.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1984 MR 7, Eff. Aug. 1, 1984; 1993 MR 7, Eff. July 24, 1993; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41476 Stationary hoists generally.**

Rule 1476. (1) To ensure suitable operation and safe condition of all functions and safety devices, each hoist assembly shall be inspected and load-tested to 100% of its rated capacity at the time of installation, after any repairs or alterations affecting its structural integrity, after the operation of any safety device, and annually when in use. The employer shall prepare a certification record that includes all of the following information:

(a) The date each inspection and load-test was performed.

(b) The signature of the person who performed the inspection and test.

(c) A serial number or other identifier for the hoist that was inspected and tested.

(d) The most recent certification record shall be maintained on file until completion of the project.

(2) A qualified person who shall be designated by the employer, shall visually inspect the stationary hoist assembly, anchorages, and hoisting rope at the beginning of each shift.

(3) All unsafe conditions that are revealed by tests, checks, or inspections shall be corrected before use of the equipment.

(4) An employee shall not be permitted to ride on a material hoist, unless the hoist is in compliance with the requirements of R 408.41478(1).

(5) Before maintenance, repairs, or other work is commenced in the shaft that is served by a hoist, the hoist operator shall be informed of the maintenance, repairs, or other work. A notice shall be installed at the top of the shaft and at the operator controls and shall state that work is being done in the shaft.

(6) Employees who are at the bottom of an excavated shaft shall be protected from the movement of equipment, tools, or materials overhead or the shaft shall be vacated during the operations that may be hazardous to persons below.

(7) If an employee is raised or lowered in a shaft, then all other hoisting operations in the shaft shall be stopped until the employee has disembarked at the bottom or top of the shaft.

(8) When a stationary hoist is being used, the drum-operating lever shall be of a type that returns automatically to the "stop" position when the operator's hand is removed, unless, as a substitute, the throttle that controls the drum speed automatically stops the drum and slows the engine to idling speed when the throttle is released.

(9) Only wire rope shall be used for hoisting and it shall be properly secured at both the drum and cage or skip ends. When the hoist is in use, not less than 2 full turns shall remain on the conventional drum hoist to protect the end that fastens at the drum from an overload.

(10) Wire rope shall not be used when any of the following conditions exist:

(a) Six randomly distributed broken wires in 1 rope lay, 3 broken wires in 1 strand in 1 lay, or 1 valley break. A valley break is a wire break that occurs between 2 adjacent strands.

(b) Abrasion, scrubbing, flattening, peening, or any severe change that causes the loss of more than 1/3 of the original diameter of the outside wires in any given area.

(c) Evidence of any heat damage or any damage that is caused by contact with electrical wires or marked corrosion of the rope.

(d) Reduction from nominal diameter of more than 3/64 of an inch for diameters up to and including 3/4 of an inch, 1/16 of an inch for diameters 7/8 to 1 1/8 inches, and 3/32 of an inch for diameters 1 1/4 to 1 1/2 inches.

(11) A wire rope that is used for hoisting shall be continuous and shall not have a knot or splice. The hoisting rope shall not be placed around the load.

(12) The connection between the hoisting rope and the cage or skip shall be of a type to prevent the cage from spinning.

(13) All hoists shall be equipped with a landing level indicator at the operator's station.

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- (14) Limit switches shall be provided to eliminate 2 blocking.
  - (15) A warning light, suitably located to warn employees at the shaft bottom and subsurface shaft entrances, shall flash if a load is above the shaft bottom or subsurface entrances or if the load is being moved in the shaft. This subrule does not apply to fully enclosed hoistways.
  - (16) If a hoistway is not fully enclosed and employees are at the shaft bottom, then conveyances or equipment shall be stopped not less than 15 feet above the bottom of the shaft and held there until the signalperson at the bottom of the shaft directs the operator to continue lowering the load, except that the load may be lowered without stopping if the load or conveyance is within full view of a bottom signalperson who is in constant voice communication with the operator.
  - (17) Cage, skips, and load connections to the hoist rope shall be made so that the force of the hoist pull, vibration, misalignment, release of lift force, or impact will not disengage the connection. Moused or latched open-throat hooks do not meet this requirement.
  - (18) When using wire rope wedge sockets, means shall be provided to prevent wedge escapement and to ensure that the wedge is properly seated.
  - (19) Hoists shall be designed so that the load hoist-drum is powered in both directions of rotation and so that the brakes are automatically applied upon power release or failure.
  - (20) If a crane is used for both personnel hoisting and material hoisting, then the load and speed ratings for personnel and for materials shall be assigned to the equipment.
  - (21) Employees shall not ride on top of any cage, skip, or bucket, except when necessary to perform inspection or maintenance of the hoisting system, in which case they shall be protected by a body belt/harness fall prevention system.
- History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1984 MR 7, Eff. Aug. 1, 1984; 1993 MR 7, Eff. July 24, 1993; 2003 MR 4, Eff. feb. 27, 2003.

**R 408.41477 Stationary material hoists.**

- Rule 1477. (1) A hoist used for raising or lowering materials in a shaft shall have a minimum factor of safety of 5, shall be designed and rated by a qualified engineer, and shall be constructed in accordance with the design. The design shall be constructed so that the hoist cannot exceed the maximum rated speed.
- (2) The rated capacity of the hoist shall be posted at all working levels.
  - (3) Each hoist assembly shall be load tested to 200% of its rated capacity upon installation, after any repairs or alterations affecting its structural integrity or operation of safety devices, and every 6 months during use. A written record of each test shall be maintained for the duration of the project and shall be made available for inspection by authorized representatives of the director.
  - (4) Hoist equipment and the operator shall be protected from inclement weather by a hoist house with a comfortable temperature maintained.
  - (5) Where glass is used in hoist house windows, the glass shall be safety glass or its equivalent.
  - (6) Hoist controls shall be arranged to make them operable from a single position of the operator.
  - (7) Controls for powered hoists shall be of the deadman-type with a non-locking switch or control.
  - (8) A device to shut off the power shall be installed ahead of the operating control.
  - (9) A hoist machine that has cast metal parts shall be limited to 2,000 pounds single line pull.
  - (10) All hoists shall be equipped with landing level indicators at the operator's station.
  - (11) Material, tools, and supplies being raised or lowered, whether within a cage or otherwise, shall be secured or stacked in a manner to prevent the load from shifting, snagging, or falling into the shaft.
- History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 2003 MR 4, Eff. feb. 27, 2003.

**R 408.41478 Personnel hoists.**

- Rule 1478. (1) A personnel hoist shall be used to raise or lower an employee in a tunnel shaft or caisson. A crane may be used to raise or lower an employee, if the crane and the work platform are as prescribed in R 408.41001 et seq., construction safety standard Part 10. Lifting and Digging Equipment. The hoist shall be in compliance with the provisions of 1967 PA 227, MCL 408.801 et seq., bureau of construction codes, elevator safety board, R 408.8511 to R 408.8524 which is referenced in R 408.41410. During the excavation of a shaft or caisson, an employee may be raised or lowered on a work platform if the work platform meets the specifications of subrule (2) of this rule.
- (2) A work platform that is attached to the load line of a crane which is used to transport, raise, or lower employees shall be in compliance with all of the following provisions:
    - (a) Be designed by a qualified person. All welding shall be in accordance with applicable American welding society standards. American welding society (AWS) standard IHS AWSC AWS--Structural Welding Code, 2000 Edition, which is adopted by reference in R 408.41410.
    - (b) Except for the guardrail system, be of welded mild steel construction that has a minimum safety factor of 5 times the

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maximum intended load.

(c) Have continuous mild steel guardrails (toprails and midrails) and toeboards as prescribed in R 408.44501 et seq., construction safety standard Part 45. Fall Protection.

(d) Have wood planking, steel plate, or grating that is bolted or welded to the bottom of the work platform.

(e) Have a 4-point wire suspension system that utilizes wire which is not less than 1/2 of an inch in diameter. Each leg of the suspension system shall be independent wire rope that has hand-tucked eye splices or swaged fittings on each end. Wire rope clips shall not be used. The independent suspension system shall be attached to the work platform using proper size screw pin shackles.

(f) Have each leg of the independent 4-point suspension system at a 30-degree angle from the vertical.

(g) Be connected to the load line by means of a screw pin shackle or a gated hook. Both ends of a minimum 5/8-inch wire rope safety line shall be installed above the headache ball to a screw pin shackle and pass through the eyes of the work platform suspension system to prevent the platform from falling if disengaged from the gated hook. If a screw pin shackle is used in place of a gated hook, then the 5/8-inch wire rope safety line is not required.

(h) Have overhead protection when there is an overhead hazard.

(i) Have a permanently affixed sign that specifies the maximum number of passengers, the identification number, and the maximum intended load.

(j) Be easily identifiable by high-visibility color or marking.

(3) Before a work platform is used on a jobsite, it shall be load-tested to 2 times the maximum intended load.

(4) The work platform and the test load shall be raised and lowered to the maximum anticipated change of elevation.

(5) A record of the load test shall be maintained on the jobsite.

(6) Employees on the work platform shall be provided with, and be required to use, proper safety equipment as prescribed in R 408.44501 et seq., construction safety standard Part 45. Fall Protection. An employee shall wear a personal fall arrest system that has a lanyard affixed to the top rail of the steel guardrail system of the work platform. Standing on the guardrail system is prohibited.

(7) Free-spooling is prohibited when using a work platform to lower personnel. The maximum rate of travel shall be 100 feet per minute.

(8) All sides of personnel cages shall be enclosed by 1/2-inch (12.70 mm) wire mesh, which shall not be less than no. 14 gauge or its equivalent, to a height of not less than 6 feet (1.83 m). When the cage or skip is being used as a work platform, its sides may be reduced in height to 42 inches (1.07 m) when the conveyance is not in motion. All personnel cages shall be provided with a positive-locking door that only opens inward.

(9) The rails on 1 side of personnel cages shall be removed and a chain shall be installed in place of the top rail to provide a door opening. The chain shall be securely fastened during all travel and only be opened during access to, or egress from, the work platform.

(10) Only hand and portable powered tools shall be permitted on the work platform.

(11) Flammable or combustible liquids or gases shall not be permitted on the work platform if the platform is occupied by an employee or employees.

(12) Platforms shall not be used during adverse weather conditions that could affect the safety of employees.

(13) There shall be a communication system, which may be a hand signal, a telephone wire, or a selective frequency radio system, between employees on the work platform and the operator of the crane. The system shall be in compliance with both of the following provisions:

(a) If hand signals are being employed and employees are being raised, lowered, or positioned and are not in continuous sight of the operator of the crane at all times, then the employer shall designate an employee, who shall not be on the work platform, to be the signalperson.

(b) The signalperson shall not be assigned any other duties while the work platform is in a suspended position with employees on it and shall remain in a position so that both the work platform and the operator can be seen at all times.

(14) The crane shall be inspected daily before being used with a work platform. All of the following components shall be inspected:

(a) The wire rope.

(b) The hook.

(c) The brakes.

(d) The boom.

(e) Any other mechanical and rigging equipment that is vital to the safety of the operation.

(15) Any structural or mechanical defect that could adversely affect the safe operation of the crane shall be corrected before an operation that utilizes a work platform begins.

(16) Inspections shall be logged and the records maintained on the jobsite.

(17) The operator of a crane that is used to raise or lower a work platform shall be authorized by the employer and properly

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qualified to perform the operation.

(18) A qualified crane operator shall not be authorized to raise or lower a platform unless the operator has at least 8 hours of experience in the operation of the specific crane or on a crane of the same type and design.

(19) A crane that is used to raise or lower a work platform shall not be within 25 feet of an overhead energized power line at the closest point of contact.

(20) When a crane is being used with a work platform, another load shall not be attached to the work platform.

(21) Only a crane that is equipped with a boom that has a power control lowering system shall be allowed to raise or lower a work platform. The crane boom shall not be live.

(22) The operator of the crane shall remain at the controls with the engine running when an occupied work platform is in a suspended position.

(23) The load line of a crane that is used to raise or lower a work platform shall be equipped with a swivel to prevent any rotation of the work platform. The use of nonspin wire rope is prohibited.

(24) Neither the load nor the boom shall be lowered below the point where less than 4 full wraps of rope remain on their respective drums.

(25) A crawler crane that is used to raise or lower a work platform shall be set on a firm base and chocked to prevent movement.

(26) A crane shall not travel in any direction when personnel are on the work platform.

(27) A crane that is equipped with outriggers shall have the beams fully extended, the jacks lowered, and each float on a firm base when the work platform is in use.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1984 MR 7, Eff. Aug. 1, 1984; 1993 MR 7, Eff. July 24, 1993; 1996 MR 8, Eff. Sept. 19, 1996; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41479 Flooding; safety screens; runways.**

Rule 1479. If there is a danger of rapid flooding in a tunnel that has a bore of 16 feet or more in diameter, then both of the following shall be provided:

(a) A runway from the face to the bulkhead as high in the tunnel as practicable to maintain not less than a 6-foot vertical clearance from the surface of the runway upward to the surface of the tunnel. The runway shall be constructed of noncombustible material and shall have a standard railing installed securely along the length of the runway as prescribed in R 408.42101 et seq., construction safety standard Part 21. Guarding of Walking and Working Areas, and R 408.44501 et seq., construction safety standard Part 45. Fall Protection. If the runway is ramped under a safety screen, then the surface shall be made slip-resistant by cleats or other equivalent means.

(b) Metal safety screens or other equivalent means installed with the bottom of the screen 4 feet above the surface of the runway. The first screen shall be located not less than 400 feet from the face of the tunnel.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1984 MR 7, Eff. Aug. 1, 1984; 1996 MR 8, Eff. Sept. 19, 1996; 2003 MR 4, Eff. Feb. 27, 2003.

**COFFERDAMS AND CAISSONS**

**R 408.41481 Cofferdams.**

Rule 1481. (1) A cofferdam shall be designed by a qualified engineer and shall be constructed and maintained in accordance with the design.

(2) If overtopping of the cofferdam by high waters is possible, then means shall be provided for controlled flooding of the work area.

(3) Warning signals for the evacuation of employees in case of an emergency shall be developed and posted.

(4) A cofferdam shall have not less than 2 means of egress. Runways, bridges, or ramps shall be provided with guardrails as prescribed in R 408.44501 et seq., construction safety standard Part 45. Fall Protection.

(5) If cofferdams are located close to navigable shipping channels, then warning devices that are visible to vessels in transit shall be provided.

History: 1954 ACS 97, Eff. Nov. 22, 1978; 1979 AC; 1984 MR 7, Eff. Aug. 1, 1984; 1996 MR 8, Eff. Sept. 19, 1996; 2003 MR 4, Eff. Feb. 27, 2003.

**R 408.41482**

**Source:** 1996 AACS.

**R 408.41483 Caissons used under pressure.**

Rule 1483. (1) A caisson used under pressure shall be subjected to a hydrostatic test equal to 200% of the working pressure



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before being used on a job, at which pressure it shall be tight. The caisson shall be stamped on the outside shell about 12 inches from each flange to show the pressure to which it has been subjected.

(2) All caissons that have a diameter or side greater than 10 feet shall be provided with a man lock and shaft for the exclusive use of employees. In addition to the gauge in the locks, an accurate gauge shall be maintained on the outer and inner side of each bulkhead. These gauges shall be accessible at all times and kept in accurate working order.

(3) In caisson operations where employees are exposed to compressed air working environments, as prescribed in R 325.62991 et seq., occupational health standard Part 665. Underground Construction, Caissons, Cofferdams, and Compressed Air, shall be compiled with.

History: 1989 MR 11, Eff. Dec. 1, 1989; 2003 MR 4, Eff. Feb. 27, 2003.

**PART 16. POWER TRANSMISSION AND DISTRIBUTION**

**R 408.41601**

Source: 1982 AACS.

**R 408.41625**

Source: 1982 AACS.

**R 408.41626**

Source: 1982 AACS.

**R 408.41627**

Source: 1985 AACS.

**R 408.41628**

Source: 1982 AACS.

**R 408.41629**

Source: 1982 AACS.

**R 408.41630**

Source: 1985 AACS.

**R 408.41631**

Source: 1982 AACS.

**R 408.41632**

Source: 1985 AACS.

**R 408.41633**

Source: 1985 AACS.

**R 408.41634**

Source: 1996 AACS.

**R 408.41635**

Source: 1982 AACS.

**R 408.41636**

Source: 1982 AACS.

**R 408.41637**

Source: 1982 AACS.

**R 408.41638**

Source: 1982 AACS.

**R 408.41639**

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**Source:** 1982 AACS.

**R 408.41640**

**Source:** 1982 AACS.

**R 408.41641**

**Source:** 1982 AACS.

**R 408.41642**

**Source:** 1982 AACS.

**R 408.41643**

**Source:** 1982 AACS.

**R 408.41644**

**Source:** 1985 AACS.

**R 408.41645**

**Source:** 1985 AACS.

**R 408.41646**

**Source:** 1982 AACS.

**R 408.41647**

**Source:** 1985 AACS.

**R 408.41648**

**Source:** 1985 AACS.

**R 408.41649**

**Source:** 1985 AACS.

**R 408.41650**

**Source:** 1982 AACS.

**R 408.41651**

**Source:** 1982 AACS.

**R 408.41652**

**Source:** 1982 AACS.

**R 408.41653**

**Source:** 1982 AACS.

**R 408.41654**

**Source:** 1982 AACS.

**R 408.41655**

**Source:** 1982 AACS.

**R 408.41656**

**Source:** 1982 AACS.

**R 408.41657**

**Source:** 1982 AACS.

**R 408.41658**

**Source:** 1982 AACS.

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**PART 17. ELECTRICAL INSTALLATIONS**

**R 408.41733**  
Source: 1982 AACS.

**PART 18. FIRE PROTECTION AND PREVENTION**

**R 408.41801**  
Source: 2002 AACS.

**R 408.41802**  
Source: 2002 AACS.

**R 408.41836**  
Source: 2002 AACS.

**R 408.41837**  
Source: 2002 AACS.

**R 408.41838**  
Source: 2002 AACS.

**R 408.41841**  
Source: 2002 AACS.

**R 408.41842**  
Source: 2002 AACS.

**R 408.41850**  
Source: 1995 AACS.

**R 408.41851**  
Source: 2002 AACS.

**R 408.41852**  
Source: 2002 AACS.

**R 408.41853**  
Source: 2002 AACS.

**R 408.41854**  
Source: 1983 AACS.

**R 408.41855**  
Source: 1983 AACS.

**R 408.41856**  
Source: 1983 AACS.

**R 408.41861**  
Source: 2002 AACS.

**R 408.41862**  
Source: 1983 AACS.

**R 408.41863**  
Source: 2002 AACS.

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**R 408.41864**  
Source: 2002 AACS.

**R 408.41865**  
Source: 1983 AACS.

**R 408.41866**  
Source: 2002 AACS.

**R 408.41867**  
Source: 1983 AACS.

**R 408.41868**  
Source: 2002 AACS.

**R 408.41869**  
Source: 2002 AACS.

**R 408.41871**  
Source: 2002 AACS.

**R 408.41872**  
Source: 1983 AACS.

**R 408.41873**  
Source: 1983 AACS.

**R 408.41874**  
Source: 1983 AACS.

**R 408.41875**  
Source: 2002 AACS.

**R 408.41876**  
Source: 2002 AACS.

**R 408.41877**  
Source: 2002 AACS.

**R 408.41878**  
Source: 1983 AACS.

**R 408.41879**  
Source: 1983 AACS.

**R 408.41881**  
Source: 1983 AACS.

**R 408.41882**  
Source: 1983 AACS.

**R 408.41883**  
Source: 1983 AACS.

**R 408.41884**  
Source: 2002 AACS.

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**PART 19. TOOLS**

**R 408.41926**  
Source: 1989 AACCS.

**R 408.41927**  
Source: 1989 AACCS.

**R 408.41928**  
Source: 1989 AACCS.

**R 408.41929**  
Source: 1989 AACCS.

**R 408.41932**  
Source: 1989 AACCS.

**R 408.41933**  
Source: 1989 AACCS.

**R 408.41934**  
Source: 1989 AACCS.

**R 408.41935**  
Source: 1995 AACCS.

**R 408.41936**  
Source: 1982 AACCS.

**R 408.41937**  
Source: 1989 AACCS.

**R 408.41943**  
Source: 1982 AACCS.

**R 408.41944**  
Source: 1997 AACCS.

**R 408.41945**  
Source: 1997 AACCS.

**R 408.41949**  
Source: 1997 AACCS.

**R 408.41951**  
Source: 1989 AACCS.

**R 408.41955**  
Source: 1989 AACCS.

**R 408.41957**  
Source: 1989 AACCS.

**R 408.41958**  
Source: 1997 AACCS.

**R 408.41959**  
Source: 1989 AACCS.

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**R 408.41960**  
Source: 1989 AACS.

**R 408.41961**  
Source: 1995 AACS.

**R 408.41962**  
Source: 1989 AACS.

**R 408.41963**  
Source: 1997 AACS.

**R 408.41964**  
Source: 1989 AACS.

**R 408.41966**  
Source: 1995 AACS.

**R 408.41970**  
Source: 1989 AACS.

**R 408.41971**  
Source: 1989 AACS.

**R 408.41972**  
Source: 1989 AACS.

**R 408.41973**  
Source: 1989 AACS.

**R 408.41974**  
Source: 1989 AACS.

**R 408.41975**  
Source: 1989 AACS.

**R 408.41976**  
Source: 1989 AACS.

**R 408.41977**  
Source: 1989 AACS.

**R 408.41978**  
Source: 1989 AACS.

**R 408.41979**  
Source: 1989 AACS.

**R 408.41980**  
Source: 1995 AACS.

**PART 20. DEMOLITION**

**R 408.42001**  
Source: 1981 AACS.

**R 408.42023**  
Source: 1998-2000 AACS.

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**R 408.42031**  
Source: 1998-2000 AACS.

**R 408.42032**  
Source: 1996 AACS.

**R 408.42033**  
Source: 1981 AACS.

**R 408.42034**  
Source: 1981 AACS.

**R 408.42041**  
Source: 1996 AACS.

**R 408.42043**  
Source: 1981 AACS.

**R 408.42044**  
Source: 1981 AACS.

**R 408.42045**  
Source: 1981 AACS.

**R 408.42046**  
Source: 1981 AACS.

**R 408.42047**  
Source: 1981 AACS.

**PART 21. GUARDING OF WALKING AND WORKING AREAS**

**R 408.42101**  
Source: 1996 AACS.

**R 408.42121**  
Source: 1996 AACS.

**R 408.42122**  
Source: 1996 AACS.

**R 408.42123**  
Source: 1996 AACS.

**R 408.42127**  
Source: 1993 AACS.

**R 408.42128**  
Source: 1993 AACS.

**R 408.42129**  
Source: 1993 AACS.

**R 408.42130**  
Source: 1993 AACS.

**R 408.42131**

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**Source:** 1996 AACS.

**R 408.42140**

**Source:** 1997 AACS.

**R 408.42141**

**Source:** 1997 AACS.

**R 408.42142**

**Source:** 1997 AACS.

**R 408.42143**

**Source:** 1997 AACS.

**R 408.42144**

**Source:** 1997 AACS.

**R 408.42145**

**Source:** 1996 AACS.

**R 408.42146**

**Source:** 1997 AACS.

**R 408.42147**

**Source:** 1997 AACS.

**R 408.42148**

**Source:** 1997 AACS.

**R 408.42149**

**Source:** 1989 AACS.

**R 408.42150**

**Source:** 1996 AACS.

**R 408.42151**

**Source:** 1997 AACS.

**R 408.42152**

**Source:** 1997 AACS.

**R 408.42153**

**Source:** 1997 AACS.

**R 408.42154**

**Source:** 1989 AACS.

**R 408.42155**

**Source:** 1993 AACS.

**R 408.42156**

**Source:** 1993 AACS.

**R 408.42157**

**Source:** 1993 AACS.

**R 408.42158**

**Source:** 1997 AACS.



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**R 408.42159**  
Source: 1989 AACS.

**R 408.42160**  
Source: 1996 AACS.

**PART 22. SIGNALS, SIGNS, TAGS, AND BARRICADES**

**R 408.42201**  
Source: 2001 AACS.

**R 408.42210**  
Source: 1997 AACS.

**R 408.42211**  
Source: 2001 AACS.

**R 408.42213**  
Source: 2001 AACS.

**R 408.42221**  
Source: 2001 AACS.

**R 408.42222**  
Source: 2001 AACS.

**R 408.42223**  
Source: 2001 AACS.

**R 408.42224**  
Source: 2001 AACS.

**R 408.42225**  
Source: 2001 AACS.

**R 408.42229**  
Source: 2001 AACS.

**R 408.42230**  
Source: 2001 AACS.

**R 408.42231**  
Source: 1995 AACS.

**R 408.42232**  
Source: 1997 AACS.

**R 408.42233**  
Source: 2001 AACS.

**R 408.42238**  
Source: 1995 AACS.

**R 408.42243**  
Source: 1995 AACS.

**PART 24. TAR KETTLES**

**R 408.42401**  
Source: 1991 AACS.

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**R 408.42403**

**Source:** 1981 AACS.

**R 408.42404**

**Source:** 1981 AACS.

**R 408.42407**

**Source:** 1996 AACS.

**PART 25. CONCRETE CONSTRUCTION**

**R 408.42501 Scope.**

Rule 2501. This part pertains to all of the following:

- (a) The reinforcing, pouring, stressing, lifting, and floating of concrete.
- (b) The construction of forms and shoring used in connection with concrete construction.
- (c) Prestressed and poststressed operations.
- (d) Precast, tilt-up, and lift-slab operations.

History: 1954 ACS 78, Eff. Mar. 2, 1974; 1954 ACS 88, Eff. Sept. 16, 1976; 1979 AC; 1979 ACS 2, Eff. Mar. 27, 1980; 1989 MR 11, Eff. Dec. 1, 1989; 1993 MR 7, Eff. July 29, 1993; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42502 Adoption of standards.**

Rule 2502. (1) The following standards are adopted by reference in these rules and are available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado, 80112, telephone number 1-800-854-7179, website: [www.global.ihs.com](http://www.global.ihs.com), at a cost as of the time of adoption of these rules, as stated in this rule:

- (a) American National Standard Institute standard ANSI A10.9, Concrete Construction and Masonry Work, 1983 edition. Cost: \$25.00.
- (b) American Welding Society standard AWS D1.1/D1.1M, Structural Welding Code Steel, 2002 edition. Cost: \$344.00.
- (c) American Welding Society standard AWS B1.10, Guide for the Nondestructive Examination of Welds, 1999 edition. Cost: \$96.00.

These standards are available for inspection at the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, 7150 Harris Drive, Lansing, Michigan 48909-8143.

History: 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42503 Reference of standards.**

Rule 2503. (1) The following Michigan occupational construction safety standards are referenced in these rules and are available from the Michigan Department of Consumer and Industry Services, MIOSHA Standards Division, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan, 48908-8143, telephone number (517) 322-1845, website: [www.michigan.gov/mioshastandards](http://www.michigan.gov/mioshastandards), at no cost as of the time of adoption of these rules:

- (a) Personal protective equipment, Part 6., R 408.40601 et seq.
- (b) Scaffolds and scaffold platforms, Part 12., R 408.41201 et seq.
- (c) Fire Protection and Prevention, Part 18., R 408.41801 et seq.
- (d) Guarding of walking and working areas, Part 21., R 408.42101 et seq.
- (e) Fall protection, Part 45., R 408.44501 et seq.

History: 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42516 Definitions.**

Rule 2516. (1) "Bull float" means a tool used to spread out and smooth concrete.

(2) "Formwork" or "falsework" means the total system of support for freshly placed or partially cured concrete, including the mold or sheeting that contacts the concrete and all supporting members, hardware, and necessary bracing.

(3) "Foundation" or "footings" means a natural or built-up solid ground or base upon which shoring or reshoring is supported, including all underlying ground strata.

(4) "Guy" means a line that steadies a high object or structure by pulling against an off-center load.

(5) "Horizontal shoring beams" means beams or trusses used as load-carrying members in shoring systems.

(6) "Jacking operation" means the task of vertically lifting a slab or group of slabs from one location to another, such as from the casting location to a temporary (parked) location, from a temporary location to another temporary location, or to its final location in the structure during the construction of a structure where the lift-slab process is being used.

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- (7) "Lift slab" means a method of concrete construction in which floor and roof slabs are cast on or at ground level and, using jacks, lifted into position.
- (8) "Precast concrete" means a concrete member that is cast and cured at a location other than its final designated location.
- (9) "Poststressed concrete" means a concrete member in which internal stresses have been introduced by the stressing of strands after the placement of concrete.
- (10) "Prestressed concrete" means a concrete member in which internal stresses have been introduced by the stressing of strands before the placement of the concrete.
- (11) "Qualified designer" means a person who, by possession of a degree, certificate, or professional standing, has demonstrated ability in design in the subject area being regulated.
- (12) "Qualified person" means a person who, because of education or training, is knowledgeable about the erection methods, materials, and hazards of the work to be performed.
- (13) "Reshore" means the vertical or inclined supporting members that are designed to distribute the weight of concrete and construction loads to lower levels until such loads can be supported by the concrete structure.
- (14) "Shore" means a vertical or inclined support member that is designed to carry the weight of formwork, concrete, and construction live loads above.
- (15) "Slip form" means a form that moves, usually continuously, during the placement of concrete. Movement may be either horizontal or vertical.
- (16) "Vertical slip form" means a form that is jacked vertically and continuously during the placing of concrete.
- History: 1979 ACS 2, Eff. Mar. 27, 1980; 1989 MR 11, Eff. Dec. 1, 1989; 1993 MR 7, Eff. July 29, 1993; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42517 Construction equipment and material requirements; adoption by reference.**

Rule 2517. (1) Equipment and material used in concrete construction and masonry work shall meet the applicable requirements prescribed in American national standard institute standard A10.9, concrete construction and masonry work, 1983 edition, which is adopted by reference.

- (2) The minimum safety factors of formwork accessories shall be as prescribed in table 1, as follows:

Table 1

MINIMUM SAFETY FACTORS OF FORMWORK ACCESSORIES*		
Accessory	Safety Factor	Type of Construction
Form Tie	1.5	Light formwork, 8 feet or less in height with no hazard to life.
	2.0	All formwork over 8 feet in height or hazardous to life. Formwork for architectural concrete.
Form Anchor	2.0	Formwork supporting form weight and concrete pressures only.
	3.0	Formwork supporting weight of forms, concrete, construction live loads, and impact.
Form Hangers	2.0	All applications.
Anchoring inserts used as form ties.	2.0	Precast concrete panels when used as formwork.

\*Safety factors are based on ultimate strength of accessory.

History: 1979 ACS 2, Eff. Mar. 27, 1980; 1989 MR 11, Eff. Dec. 1, 1989; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42518 Reinforcing steel.**

Rule 2518. (1) An employee who is placing and tying reinforced steel and who works from reinforcing steel more than 6 feet above an adjacent working surface shall use a personal fall arrest system as prescribed in Fall Protection, Part 45., R 408.44501 et seq.

- (2) A route designated as a means of access or egress across reinforcing steel for general traffic shall be provided with a walkway.
- (3) An employee shall not be permitted to work above vertically protruding reinforcing steel unless the steel has been protected to eliminate the hazard of impalement of the employee.
- (4) Reinforcing steel or walls, piers, columns, and other similar vertical structures shall be guyed, braced, or otherwise supported to prevent collapse.
- (5) Reinforcing steel shall not be used as a scaffolding hook or stirrup or as a load-bearing member in a lifting device.
- (6) Reinforcing steel shall not be welded and used as a load-bearing member.
- (7) Roll wire mesh shall be secured at each end to prevent dangerous recoiling action.

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(8) Roll wire mesh spear ends shall be trimmed to the nearest point.

History: 1979 ACS 2, Eff. Mar. 27, 1980; 1989 MR 11, Eff. Dec. 1, 1989; 1996 MR 8, Eff. Sept. 19, 1996; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42519 Bulk concrete handling.**

Rule 2519. A bulk storage bin, container, or silo shall have a conical or tapered bottom with a mechanical or pneumatic means of starting the flow of the material. An employee shall not be permitted to enter storage facilities unless the ejection system has been shut down, locked out, and tagged to indicate that the ejection system is not operable.

History: 1979 ACS 2, Eff. Mar. 27, 1980; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42520 Concrete mixing, pouring, and floating.**

Rule 2520. (1) A concrete mixer that is equipped with a 1-yard or larger loading skip shall be equipped with a mechanical device to clear the skip of material.

(2) A guardrail that is capable of withstanding a 200-pound side thrust shall be provided on each side of a skip on a mixer that has a capacity of 1 or more yards.

(3) The handle on a bull float that is used where it may contact an energized electrical conductor shall be constructed of nonconductive material or shall be insulated with a nonconductive sheath that has electrical and mechanical characteristics which provide the equivalent protection of a handle constructed of nonconductive material.

(4) A powered and rotating-type concrete troweling machine that is manually guided shall be equipped with a control switch that will automatically shut off the power when the hands of the operator are removed from the equipment handles or switch.

(5) The handles of a concrete buggy shall not extend horizontally beyond the wheels on either side of the buggy.

(6) A concrete bucket that is equipped with a hydraulically or pneumatically operated gate shall have a positive safety latch or a similar safety device installed to prevent premature or accidental dumping. The bucket shall be designed to prevent aggregate and loose material from accumulating on the top and sides of the bucket.

(7) An employee shall not be permitted to ride a bucket or walk or work under a bucket that is suspended from a crane or cableway.

(8) A concrete bucket that is positioned by a crane or cableway shall be suspended from an approved swivel safety-type hook.

(9) When the point of placement is not readily visible to the crane or cableway operator, a signalman shall be positioned in clear view of the operator and the point of placement. If positioning of a signalman in clear view is not possible, then reliable telephone or radio communication shall be used.

(10) A pumpcrete or similar system using discharge pipe shall have pipe supports that are designed for a 100% overload. Compression air hoses in the system shall be provided with positive fail-safe joint connectors to prevent the separation of sections when pressurized.

(11) When discharging on a slope, a ready-mix truck's wheels shall be blocked and the brakes set to prevent movement.

(12) An employee who is green cutting, sandblasting, or applying concrete through a pneumatic hose shall wear head, face, and eye protection in compliance with the provisions of Personal Protective Equipment, Part 6., R 408.40601 et seq.

(13) A runway, ramp, or scaffold, as prescribed in Scaffolds and Scaffold Platforms, Part 12., R 408.41201 et seq.; Rules 2143, 2150, and 2154 of Guarding of Walking and Working Areas, Part 21., R 408.42143, R 408.42150, and R 408.42154; and Fall Protection, Part 45., R 408.44501 et seq. shall be provided for placement of concrete in areas such as walls, piers, columns, and beams.

(14) A concrete mixer, or other equipment, such as a compressor, screen, or pumps used for concrete construction activities, where inadvertent operation of the equipment may occur and cause injury shall be locked out when an employee is performing maintenance or repair. An employee who is inside a concrete mixer performing maintenance or repair shall have the only key to the lock.

(15) Sections of tremies and similar concrete conveyances shall be secured with wire rope, or equivalent materials, in addition to the regular couplings or connections.

History: 1979 ACS 2, Eff. Mar. 27, 1980; 1979 ACS 12, Eff. Dec. 10, 1982; 1989 MR 11, Eff. Dec. 1, 1989; 1996 MR 8, Eff. Sept. 19, 1996; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42521 Forms and shoring generally.**

Rule 2521. (1) Formwork, shoring, and reshoring shall be designed, erected, supported, braced, and maintained so that they will support all vertical and lateral loads that may be imposed upon them during placement of concrete or until the loads can be supported by the concrete structure.

(2) Drawings or plans which are prepared by the qualified person, except as required in R 408.42527(7) and R 408.42533(1), and which show the jack layout, formwork, shoring, working decks, and scaffolding shall be available at the jobsite.

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(3) An employee who is working on formwork 6 feet or more above the ground or floor shall use a personal fall arrest system as prescribed in Fall Protection, Part 45., R 408.44501 et seq. or shall be provided with scaffolding as prescribed in Scaffolds and Scaffold Platforms, Part 12., R 408.41201 et seq.

(4) Stripped forms and shoring shall be removed and stockpiled promptly after stripping in all areas in which an employee is required to work or pass. Protruding nails, wire ties, and other form accessories that are not necessary to subsequent work shall be pulled or cut or other means shall be employed to eliminate a hazard.

(5) No construction loads shall be placed on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.

History: 1979 ACS 2, Eff. Mar. 27, 1980; 1979 ACS 12, Eff. Dec. 10, 1982; 1989 MR 11, Eff. Dec. 1, 1989; 1996 MR 8, Eff. Sept. 19, 1996; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42522 Placing and removing forms.**

Rule 2522. (1) A tag line shall be used to control large panels or large sections.

(2) Forms shall not be completely removed until a determination has been made that the concrete can support its own weight and any currently superimposed load. Such determination shall be based on compliance with either of the following:

(a) The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed.

(b) The concrete has been properly tested with an appropriate ASTM standard test method designed to indicate the concrete compressive strength, and that the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.

(3) Built-up sections shall have lifting attachments that are capable of handling an imposed load.

(4) Vertical, horizontal, and overhead forms that are being raised or removed by lifting equipment shall be braced or secured before being released from the load line.

(5) When using metal pan deck forms, the placement of the pans shall follow a sequence. Planks shall be laid in a manner that reduces the hazard of falling or else solid decking shall be used.

History: 1979 ACS 2, Eff. Mar. 27, 1980; 1989 MR 11, Eff. Dec. 1, 1989; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42523 Vertical slip forms.**

Rule 2523. (1) Field operations for vertical slip forms shall be under the supervision of a qualified person. The qualified person shall be present on the deck during slipping operations.

(2) A lift shall proceed steadily and uniformly and shall not exceed the predetermined rate of lift.

(3) The steel rods or pipe on which the jacks climb or by which the forms are lifted shall be specifically designed for such climbing or lifting. Such rods shall be adequately braced if they are not encased in concrete.

(4) Jacks and vertical supports shall be positioned so that the vertical loads are distributed equally and do not exceed the capacity of the jacks.

(5) The jacks or other lifting devices shall be provided with mechanical dogs or other automatic holding devices to prevent slippage due to the failure of the power supply of the lifting mechanism.

(6) Vertical lift forms shall be provided with scaffolding or work platforms that completely encircle the area of placement. The scaffolds shall be as prescribed in Scaffolds and Scaffold Platforms, Part 12., R 408.41201 et seq.

(7) Lateral and diagonal bracing of vertical slip forms shall be provided to prevent excessive distortion of the structure during the jacking operation.

(8) During a jacking operation, the form structure shall be maintained in line and plumb.

History: 1979 ACS 2, Eff. Mar. 27, 1980; 1989 MR 11, Eff. Dec. 1, 1989; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42524**

Source: 1989 AACS.

**R 408.42525**

Source: 1980 AACS.

**R 408.42526**

Source: 1980 AACS.

**R 408.42527 Single-post shores.**

Rule 2527. (1) For stability, a single-post shore shall be horizontally braced in both the longitudinal and transverse

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directions, and diagonal bracing shall also be installed. The bracing shall be installed as the shores are being erected.

(2) The top of single-post shores shall be restricted from movement by the use of retainers or other equivalent means.

(3) Devices for attaching the external lateral stability bracing shall be securely fastened to the single-post shores.

(4) Timber and fabricated single-post shores and the adjusting devices shall be inspected before erection. Timber for single-post shores shall not be used if it contains splits, cuts, rotting, or structural damage.

(5) A metal single-post shore and the adjusting devices shall not be used if the shore or devices are heavily rusted, bent, dented, or rewelded or have broken weldments or other defects.

(6) A nail that is used to secure bracing on adjustable timber single-post shores shall be driven home and the point bent over, if possible.

(7) A single-post shore that is used in more than 1 tier shall be designed by a registered engineer and inspected by a qualified person. All of the following shall apply:

(a) The single post shores shall be vertically aligned.

(b) The single post shores shall be spliced to prevent misalignment.

(c) The single post shores shall be adequately braced in 2 mutually perpendicular directions at the splice level. Each tier shall also be diagonally braced in the same 2 directions.

(8) When formwork is at an angle or is sloping or when the surface shored is sloping, the shoring shall be designed for this loading by a qualified engineer.

History: 1979 ACS 2, Eff. Mar. 27, 1980; 1989 MR 11, Eff. Dec. 1, 1989; 2003 MR 23, Eff. Dec.19, 2003

**R 408.42528**

**Source:** 1989 AACS.

**R 408.42531**

**Source:** 1989 AACS.

**R 408.42532 Precast and tilt-up operations.**

Rule 2532. (1) Lifting inserts which are embedded or otherwise attached to tilt-up precast concrete members shall be capable of supporting at least 2 times the maximum intended load applied or transmitted to them. Lifting inserts which are embedded or otherwise attached to precast concrete members, other than the tilt-up members, shall be capable of supporting at least 4 times the maximum intended load applied or transmitted to them. Lifting hardware shall be capable of supporting at least 5 times the maximum intended load applied transmitted to the lifting hardware.

(2) An erection and procedure plan, including placement of connections, shall be prepared by a qualified employee knowledgeable in precast concrete erection and be kept available at the jobsite.

(3) Precast concrete wall units and vertical panels shall be braced to prevent collapse. A permanent connection may be used in place of bracing if it is capable of withstanding all loads imposed during construction.

(4) An employee, except for a connector, shall not be permitted under a precast section, wall, or panel during lifting and tilting operations.

(5) When vacuum lifting concrete panels, slabs, or other structural members, the lifting surfaces shall be clean, well bonded, and monolithic before vacuum lifting is attempted.

History: 1979 ACS 2, Eff. Mar. 27, 1980; 1989 MR 11, Eff. Dec. 1, 1989; 1993 MR 7, Eff. July 29, 1993; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42533 Lift-slab operations.**

Rule 2533. (1) A registered professional engineer who is qualified in lift-slab operations shall design and plan lift-slab operations. An employer shall implement the plans and designs and shall include detailed instructions and sketches that indicate the prescribed method of erection. The plans and designs shall also include provisions for ensuring lateral stability of the building or structure during construction.

(2) An employer shall ensure that jacks are marked to indicate the rated capacity established by the manufacturer.

(3) An employer shall ensure that jacks are not loaded beyond the rated capacity established by the manufacturer.

(4) An employer shall ensure that jacking equipment is not overloaded and the threaded rods and other members that transmit loads to the jacks are capable of supporting not less than 2 1/2 times the load to be applied. Jacking equipment shall include all of the following:

(a) Jacks and other lifting units.

(b) Lifting angles.

(c) Lifting nuts.

(d) Hook-up collars.

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- (e) T-caps.
  - (f) Shearheads.
  - (g) Columns and footings.
  - (5) An employer shall ensure that a jack is designed and installed so that it will not lift or continue to lift when it is loaded in excess of its rated capacity.
  - (6) An employer shall ensure that a jack has a safety device installed that will cause the jack to support the load in any position if the jack malfunctions or loses its lifting ability.
  - (7) An employer shall ensure that jacking operations are synchronized to ensure even and uniform lifting of the slab. An employer shall ensure, that during lifting, all points of the slab support are kept within 1/2 of an inch of that needed to maintain the slab in a level position.
  - (8) If leveling is automatically controlled, then an employer shall ensure that a device is installed which will stop the operation when the 1/2-inch tolerance specified in subrule (7) of this rule is exceeded or when there is a malfunction in the jacking system.
  - (9) An employer shall ensure that the maximum number of manually controlled jacks on 1 slab is limited to a number, which shall not be more than 14, that will permit the operator to maintain the slab level within specified tolerances. The controls shall be located near a qualified person.
  - (10) An employer shall ensure that an employee, except for an employee who is essential to the jacking operation, is not permitted in the building while any jacking operation is taking place. For the purpose of this subrule, a jacking operation begins when a slab or group of slabs is lifted and ends when the slabs are secured with either temporary connections or permanent connections.
  - (11) An employer shall ensure that an employee is not permitted under a slab during jacking operations.
  - (12) An employer shall ensure that all welding on temporary and permanent connections is performed in accordance with the requirements of the American welding society standards AWS D1.1/D1.1M, 2002 edition, Structural Welding Code Steel, and AWS B1.10, 1999 edition, Guide for the Nondestructive Examination of Welds. These standards are adopted by reference in R 408.42503. An employer shall ensure that the welders are familiar with the welding requirements specified in the lift-slab plan and specifications.
  - (13) An employer shall ensure that load transfer from jacks to building columns is not executed until the welds on the column shear plates are cooled to air temperature.
  - (14) An employer shall ensure that jack-lifting units are positively secured to building columns so that they do not become dislodged or dislocated.
  - (15) An employer shall ensure that equipment is designed and installed so that the lifting rods cannot slip out of position or the employer shall initiate other measures, such as the use of locking or blocking devices, that will provide attachments and prevent components from disengaging during lifting operations.
  - (16) Lifting devices, other than jacks covered by subrule (4) of this rule, shall be of sufficient strength and design to provide a safety factor not less than 5 times the working load.
  - (17) Defective equipment shall be removed from service.
- History: 1979 ACS 2, Eff. Mar. 27, 1980; 1989 MR 11, Eff. Dec. 1, 1989; 1993 MR 7, Eff. July 29, 1993; 1999 MR 4, Eff. Apr. 21, 1999; 2003 MR 23, Eff. Dec. 19, 2003.

**R 408.42534**

**Source:** 1989 AACS.

**R 408.42535 Concrete curing.**

Rule 2535. (1) An employer shall ensure that all heating devices, including temporary heating devices, are located at a safe distance sufficient to prevent ignition of any materials in their proximity and in accordance with Fire Protection and Prevention, Part 18., R 408.41801 et seq. Rule 1884 of Part 18 covers detailed safety provisions for heating devices.

(2) When salamanders or similar heating units are used to protect concrete from freezing, all of the following requirements shall be complied with:

- (a) All salamanders shall be covered and properly vented.
- (b) Salamanders shall not be refueled until extinguished and permitted to cool.
- (c) Where tarpaulins or other materials are used to form protective enclosures for winter protection, the material shall be fire resistant and installed to prevent contact with the heating unit.

History: 1989 MR 11, Eff. Dec. 1, 1989; 2003 MR 23, Eff. Dec. 19, 2003.

**PART 26. STEEL AND PRECAST ERECTION**

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**R 408.42601**  
Source: 2002 AACS.

**R 408.42602**  
Source: 2002 AACS.

**R 408.42604**  
Source: 2002 AACS.

**R 408.42605**  
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Source: 2002 AACS.

**R 408.42607**  
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**R 408.42608**  
Source: 2002 AACS.

**R 408.42609**  
Source: 2002 AACS.

**R 408.42610**  
Source: 2002 AACS.

**R 408.42611**  
Source: 1997 AACS.

**R 408.42612**  
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**R 408.42613**  
Source: 1997 AACS.

**R 408.42614**  
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**R 408.42615**  
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**R 408.42616**  
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**R 408.42617**  
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**R 408.42618**  
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**R 408.42620**  
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**R 408.42621**  
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**R 408.42622**  
Source: 2002 AACS.



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**R 408.42623**  
Source: 2002 AACS.

**R 408.42626**  
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**R 408.42628**  
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**R 408.42629**  
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**R 408.42630**  
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**R 408.42632**  
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**R 408.42634**  
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**R 408.42636**  
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**R 408.42638**  
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**R 408.42640**  
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**R 408.42642**  
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**R 408.42648**  
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**R 408.42650**  
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**R 408.42651**  
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**R 408.42653**  
Source: 2002 AACS.

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**R 408.42654**  
Source: 2002 AACS.

**R 408.42655**  
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**R 408.42656**  
Source: 2002 AACS.

**PART 27. BLASTING AND USE OF EXPLOSIVES**

**R 408.42701**  
Source: 1982 AACS.

**R 408.42724**  
Source: 1982 AACS.

**R 408.42725**  
Source: 1982 AACS.

**R 408.42726**  
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**R 408.42727**  
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**R 408.42728**  
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**R 408.42731**  
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**R 408.42732**  
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**R 408.42733**  
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**R 408.42734**  
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**R 408.42735**  
Source: 1988 AACS.

**R 408.42737**  
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**R 408.42741**  
Source: 1994 AACS.

**R 408.42742**  
Source: 1982 AACS.

**R 408.42743**  
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**R 408.42744**  
Source: 1982 AACS.

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**R 408.42751**  
Source: 1982 AACS.

**R 408.42752**  
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**R 408.42761**  
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**R 408.42762**  
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**R 408.42763**  
Source: 1982 AACS.

**R 408.42799**  
Source: 1988 AACS.

**PART 30. TELECOMMUNICATIONS**

**R 408.43005**  
Source: 1982 AACS.

**PART 31. DIVING OPERATIONS**

**R 408.43106**  
Source: 1994 AACS.

**R 408.43109**  
Source: 1994 AACS.

**R 408.43121**  
Source: 1994 AACS.

**R 408.43155**  
Source: 1994 AACS.

**R 408.43156**

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**Source:** 1994 AACS.

**R 408.43162**

**Source:** 1994 AACS.

**PART 32. AERIAL WORK PLATFORMS**

**R 408.43201**

**Source:** 1992 AACS.

**R 408.43202**

**Source:** 1998-2000 AACS.

**R 408.43203**

**Source:** 1992 AACS.

**R 408.43204**

**Source:** 1992 AACS.

**R 408.43205**

**Source:** 1998-2000 AACS.

**R 408.43206**

**Source:** 1998-2000 AACS.

**R 408.43207**

**Source:** 1992 AACS.

**R 408.43208**

**Source:** 1992 AACS.

**R 408.43209**

**Source:** 1998-2000 AACS.

**R 408.43210**

**Source:** 1992 AACS.

**PART 42. HAZARD COMMUNICATION**

**R 408.44201**

**Source:** 1995 AACS.

**R 408.44202**

**Source:** 1995 AACS.

**R 408.44203**

**Source:** 1995 AACS.

**PART 45. FALL PROTECTION**

**R 408.44501**

**Source:** 1996 AACS.

**R 408.44502**

**Source:** 1996 AACS.

**PART 51. AGRICULTURAL TRACTORS**

**R 408.45101**

**Source:** 1997 AACS.

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**PART 91. PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS**

**R 408.49101**

Source: 1998-2000 AACS.

**DEPARTMENT OF EDUCATION  
VOCATIONAL-TECHNICAL EDUCATION SERVICE  
STANDARDS FOR ISSUANCE OF WORK PERMITS**

**R 409.1**

Source: 1980 AACS.

**R 409.2**

Source: 1980 AACS.

**R 409.3**

Source: 1980 AACS.

**R 409.4**

Source: 1980 AACS.

**R 409.5**

Source: 1980 AACS.

**R 409.6**

Source: 1980 AACS.

**DEPARTMENT OF CONSUMER AND INDUSTRY SERVICES  
DIRECTOR'S OFFICE  
WORKER'S COMPENSATION APPELLATE COMMISSION  
ADMINISTRATIVE APPELLATE PROCEDURE**

**R 418.1**

Source: 1991 AACS.

**R 418.2**

Source: 1991 AACS.

**R 418.3**

Source: 1991 AACS.

**R 418.4**

Source: 1991 AACS.

**R 418.5**

Source: 1991 AACS.

**R 418.6**

Source: 1991 AACS.

**R 418.7**

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**R 418.8**

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**WORKER'S COMPENSATION BOARD OF MAGISTRATES**

**R 418.51**  
Source: 1996 AACS.

**R 418.52**  
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**R 418.54**  
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**R 418.56**  
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**R 418.57**  
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**R 418.58**  
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**BUREAU OF WORKER'S DISABILITY COMPENSATION  
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**PART 1. GENERAL PROVISIONS**

**R 418.101**  
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**R 418.102**  
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**R 418.103**  
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**R 418.104**  
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**R 418.105**  
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**R 418.106**  
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**R 418.107**  
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**R 418.108**  
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**R 418.109**  
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**R 418.110**

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**Source:** 1998-2000 AACCS.

**R 418.111**

**Source:** 1998-2000 AACCS.

**R 418.112**

**Source:** 1998-2000 AACCS.

**R 418.113**

**Source:** 1998-2000 AACCS.

**R 418.114**

**Source:** 1998-2000 AACCS.

**R 418.115**

**Source:** 1998-2000 AACCS.

**R 418.116**

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**Source:** 1998-2000 AACCS.

**R 418.118**

**Source:** 1998-2000 AACCS.

**R 418.119**

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**Source:** 1998-2000 AACCS.

**R 418.121**

**Source:** 1998-2000 AACCS.

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**Source:** 1998-2000 AACCS.

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**R 418.129**

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**R 418.130**  
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**R 418.131**  
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**R 418.132**  
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**PART 2. MEDICINE AND EVALUATION AND MANAGEMENT SERVICES**

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**R 418.202**  
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**R 418.215**  
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**PART 3. ANESTHESIA**

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**PART 4. SURGERY**

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**R 418.410**  
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**PART 5. RADIOLOGY, RADIATION THERAPY, AND NUCLEAR MEDICINE**

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**R 418.601**  
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**R 418.602**  
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**R 418.611**  
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**R 418.612**  
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**PART 7. DENTAL**

**R 418.701**  
Source: 1998-2000 AACS.

**R 418.702**  
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**R 418.703**  
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**R 418.704**  
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**R 418.705**  
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**PART 8. AMBULANCE SERVICE**

**R 418.801**  
Source: 1998-2000 AACS.

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**R 418.802**  
Source: 1998-2000 AACs.

**PART 9. HOME HEALTH AGENCY**

**R 418.901**  
Source: 1998-2000 AACs.

**R 418.902**  
Source: 1998-2000 AACs.

**R 418.903**  
Source: 1998-2000 AACs.

**R 418.904**  
Source: 1998-2000 AACs.

**R 418.905**  
Source: 1998-2000 AACs.

**PART 10. PHARMACY AND MEDICAL SUPPLY SERVICE**

**R 418.1001**  
Source: 1998-2000 AACs.

**R 418.1002**  
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**R 418.1003**  
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**R 418.1004**  
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**R 418.1005**  
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**R 418.1006**  
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**R 418.1007**  
Source: 1998-2000 AACs.

**PART 11. OCCUPATIONAL THERAPY AND PHYSICAL THERAPY**

**R 418.1101**  
Source: 1998-2000 AACs.

**R 418.1102**  
Source: 1998-2000 AACs.

**R 418.1103**  
Source: 1998-2000 AACs.

**R 418.1104**  
Source: 1998-2000 AACs.

**R 418.1105**

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**Source:** 1998-2000 AACs.

**R 418.1106**

**Source:** 1998-2000 AACs.

**PART 12. ORTHOTIC AND PROSTHETIC EQUIPMENT**

**R 418.1201**

**Source:** 1998-2000 AACs.

**R 418.1202**

**Source:** 1998-2000 AACs.

**R 418.1203**

**Source:** 1998-2000 AACs.

**R 418.1204**

**Source:** 1998-2000 AACs.

**PART 13. HEARING SERVICE**

**R 418.1301**

**Source:** 1998-2000 AACs.

**R 418.1302**

**Source:** 1998-2000 AACs.

**PART 14. VISION AND PROSTHETIC OPTICAL SERVICE**

**R 418.1401**

**Source:** 1998-2000 AACs.

**R 418.1402**

**Source:** 1998-2000 AACs.

**PART 15. MISCELLANEOUS SUPPLIER**

**R 418.1501**

**Source:** 1998-2000 AACs.

**R 418.1502**

**Source:** 1998-2000 AACs.

**R 418.1503**

**Source:** 1998-2000 AACs.

**PART 16. FACILITY SERVICE**

**R 418.1601**

**Source:** 1998-2000 AACs.

**R 418.1602**

**Source:** 1998-2000 AACs.

**R 418.1603**

**Source:** 1998-2000 AACs.

**R 418.1604**

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**R 418.1605**

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**R 418.1606**

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**R 418.1607**

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**R 418.1608**

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**R 418.1609**

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**R 418.1610**

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**R 418.1611**

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**R 418.1612**

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**R 418.1614**

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**R 418.1615**

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**R 418.1616**

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**R 418.1617**

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**PART 17. TECHNICAL AND PROFESSIONAL HEALTH CARE REVIEW**

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**R 418.1702**

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**R 418.1703**

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**R 418.1704**

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**R 418.1705**

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**R 418.1707**

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**R 418.1708**

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**PART 18. DATA ACQUISITION FROM CARRIERS, PROVIDERS, AND FACILITIES**

**R 418.1801**

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**R 418.1802**

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**R 418.1803**

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**R 418.1804**

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**PART 19. PROCESS FOR RESOLVING DIFFERENCES  
BETWEEN CARRIER AND PROVIDER REGARDING BILL**

**R 418.1901**

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**R 418.1902**

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**R 418.1903**

**Source:** 1998-2000 AACS.

**R 418.1904**

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**R 418.1905**

**Source:** 1998-2000 AACS.

**PART 20. RECONSIDERATION AND APPEAL OF ACTIONS OF  
REGARDING HOSPITAL'S MAXIMUM PAYMENT RATIO AND  
CERTIFICATION OF CARRIER'S PROFESSIONAL REVIEW PROGRAM**

**R 418.2001**

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**R 418.2002**

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**R 418.2003**

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**R 418.2004**

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**PART 21. PAYMENT**

**R 418.2101**  
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**R 418.2102**  
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**R 418.2103**  
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**R 418.2104**  
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**R 418.2105**  
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**R 418.2110**  
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**R 418.2111**  
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**PART 22. BILLING BY PRACTITIONER OR HEALTH CARE ORGANIZATION**

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**R 418.2205**

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**PART 23. FEE SCHEDULE**

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**R 418.2323**  
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**R 418.2324**  
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**R 418.2325**  
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